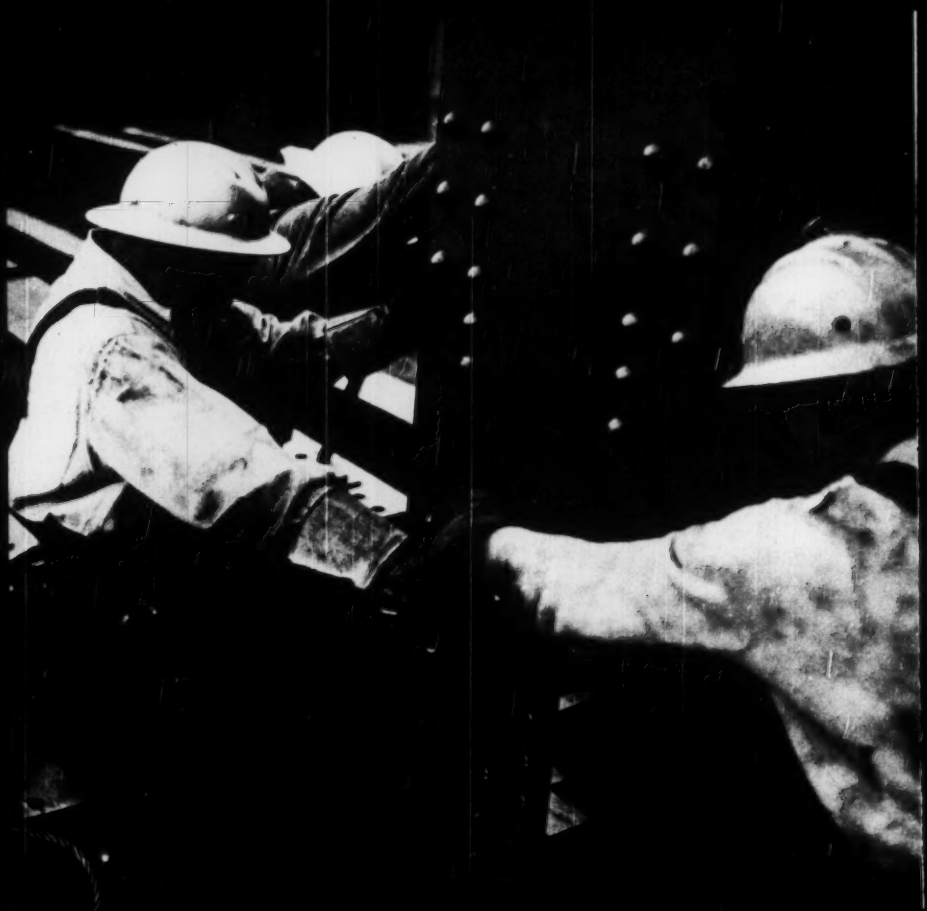
ENGINEERING NEWS-RECORD



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This HORTON* Tank Saves 50 Per Cent

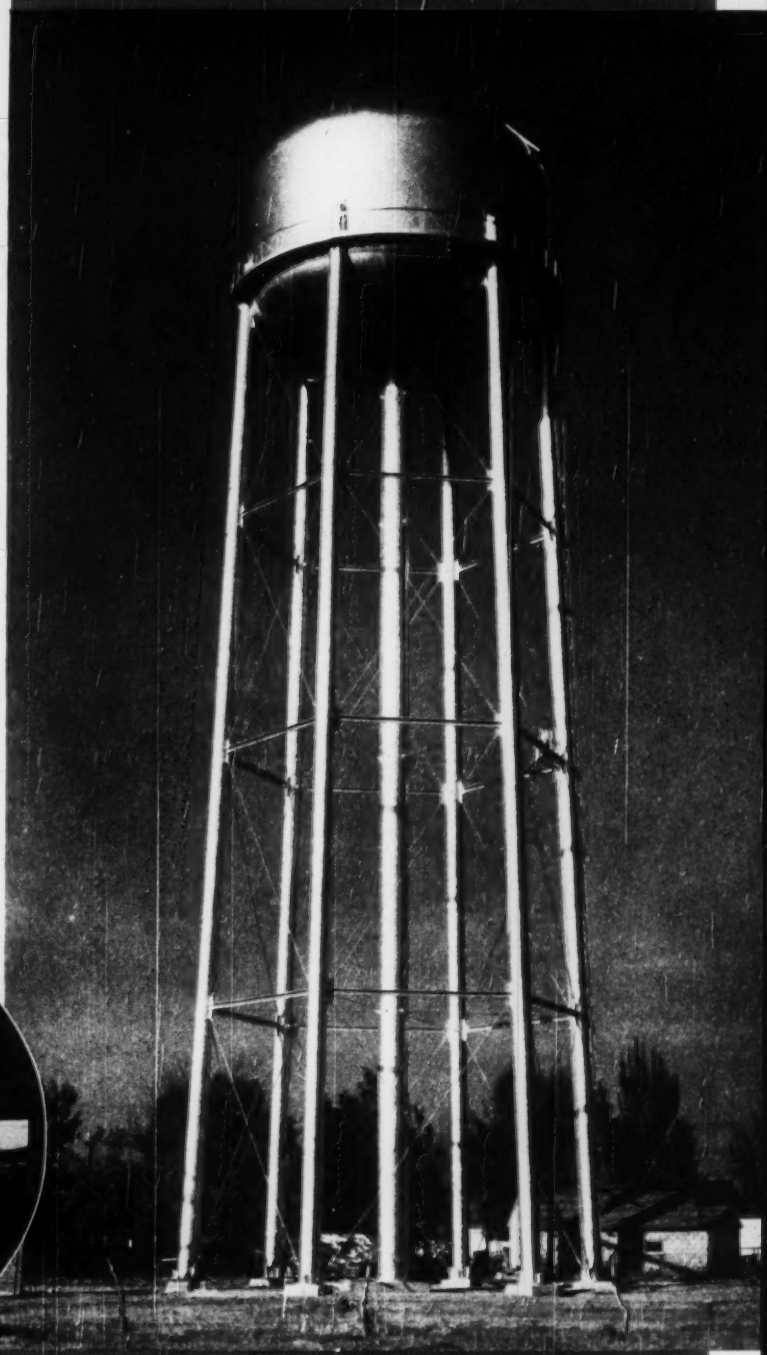
. . . of the power and operating costs at South Salt Lake

This 300,000-gal. Horton elevated tank provides gravity water pressure in the distribution system at South Salt Lake, Utah, and thus enables the city to operate its water pumping equipment with higher efficiency at lower cost. Before the tank was installed, water purchased from Salt Lake City was pumped directly into the lines. Then, a 950-gpm pump delivering 50 to 550 gals. per minute, was running 24 hours per day. Now, the pumping equipment operates only about *25 per cent of the time* and when it is running it is operating at *full capacity*. The city manager says: "I feel that the tank will effect a savings of *close to 50 per cent* in our operating and power costs over a period of 20 years. . . ."

South Salt Lake illustrates one of the ways a community benefits when the designing engineer decides to provide elevated water storage facilities in its distribution system. There are several other benefits to be gained by the use of elevated water tanks. Write the nearest office for a copy of our bulletin giving full details.

**Registered in U. S. Patent Office*

Below: A bottom plate for the South Salt Lake tank about to be dished at our Salt Lake City plant. This new plant enables us to provide prompt, complete service throughout the west.



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ENGINEERING NEWS-RECORD

VOLUME 144 MARCH 9, 1950 NO. 10

WALDO G. BOWMAN
Editor

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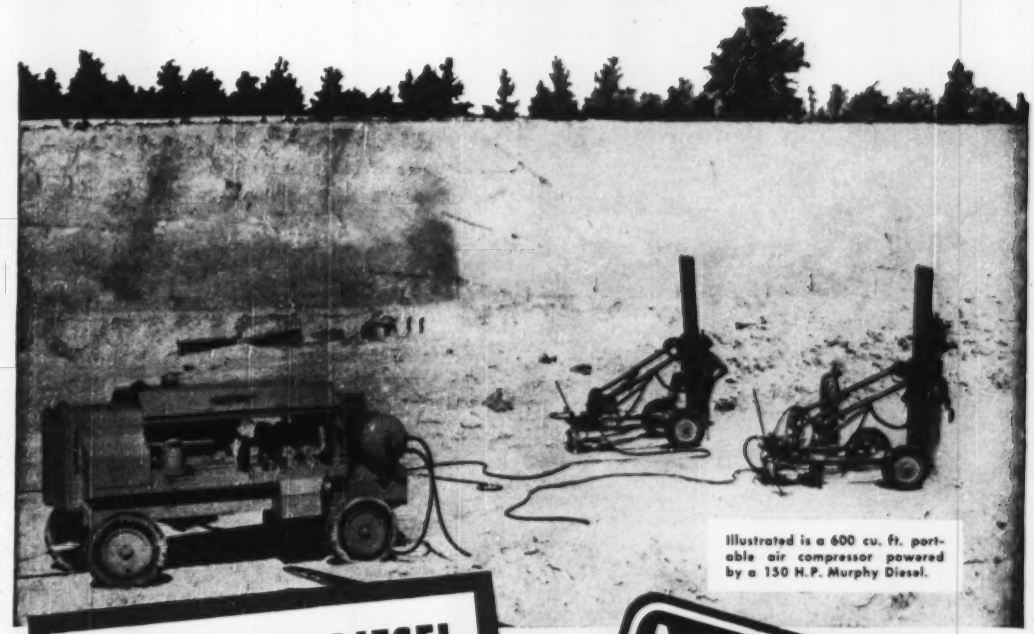
When working against time...



Illustrated is a 600 cu. ft. portable air compressor powered by a 150 H.P. Murphy Diesel.

...MURPHY DIESEL dependability really pays off

RELIABILITY with a minimum of down time is one of the most important factors in making a job profitable. And that's the kind of power you get with Murphy Diesels. Instantaneous starting, at over 100° or below zero, puts Murphy Diesels on the job immediately. Simple design and heavy duty construction enables them to stay on the job longer.

Murphy Diesel dependability plus fuel economy that is *unmatched by any other engine* of comparable power, gives you the kind of power that pays off in lower costs and bigger profits. Check up now, and find out what Murphy Diesel Power can do for you. Call your Murphy Diesel Dealer or write direct.

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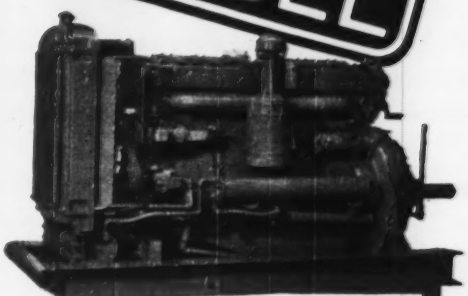
MURPHY DIESEL



Heavy duty power

for construction

Murphy Diesel Engines and Power Units for construction, 90 to 220 H.P. Generator Sets, 60 to 133 K.W.

Without beam strength—or, for that matter—without all of the strength factors listed opposite—no pipe laid 100 years ago in *city streets* would be in service today. But, in spite of the evolution of traffic from horse-drawn vehicles to heavy trucks and buses—and today's vast complexity of subway and underground utility services—cast iron gas and water mains, laid over a century ago, are serving in the streets of more than 30 cities in the United States and Canada. Such service records prove that cast iron pipe combines all the strength factors of long life with ample margins of safety. No pipe that is provably deficient in any of these strength factors should ever be laid in city streets. Cast Iron Pipe Research Association, Thos. F. Wolfe, Engineer, 122 So. Michigan Ave., Chicago 3.

CAST IRON PIPE

Strength factors of Long Life !

No pipe that is provably deficient in any of these strength factors should ever be laid in city streets

BEAM STRENGTH

When cast iron pipe is subjected to beam stress caused by soil settlement, or disturbance of soil by other utilities, or resting on an obstruction, tests prove that standard 6-inch cast iron pipe in 10-foot span sustains a load of 15,000 lbs.

CRUSHING STRENGTH

The ability of cast iron pipe to withstand external loads imposed by heavy fill and unusual traffic loads is proved by the Ring Compression Test. Standard 6-inch cast iron pipe withstands a crushing weight of more than 14,000 lbs. per foot.

SHOCK STRENGTH

The toughness of cast iron pipe which enables it to withstand impact and traffic shocks, as well as the hazards in handling, is demonstrated by the Impact Test. While under hydrostatic pressure and the heavy blows from a 50 pound hammer, standard 6-inch cast iron pipe does not crack until the hammer is dropped 6 times *on the same spot* from progressively increased heights of 6 inches.

BURSTING STRENGTH

In full length bursting tests standard 6-inch cast iron pipe withstands more than 2500 lbs. per square inch internal hydrostatic pressure, which proves ample ability to resist water-hammer or unusual working pressures.

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Built like a fine watch!

It gives you the low operating cost of an open type motor with the protection of a fully-enclosed motor! You save 5% to 10% on power costs. The motor never "gums up", requires minimum maintenance, adds to long life of the entire unit. No wonder engineers, architects and contractors name ILG Self-Cooled Motor Propeller Fans their first choice year after year in independent surveys. They know that ILG quality *pays-off in performance*. For complete information, call nearby branch office or send coupon for FREE Propeller Fan Catalog.

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NEWS BRIEFS

More for less—Boston's Public Works Department finds it pays to consolidate automotive equipment responsibility. It's accomplishing better service at a lower cost by putting direct control of 426 pieces of equipment—used by the sanitary, highway, sewer bridge and ferry and water divisions under one head.

Slump-proofing Hawaii—First rehabilitation, then improvement — that's Hawaii's harbor program. There's a $1,500,000 rehabilitation effort aimed at avoiding "a lot of deferred maintenance to worry about if money should become scare during a possible depression." There's a $9,500,000 improvement program, too.

Greater Toronto—Second stage of Toronto's vast subway program is nearing the bid stage. Bids were to be asked March 1 for opening May 10, covering about three miles of underground and open-cut construction. First stage, underground construction below Yonge Street, got underway last year. Second stage construction is to start this summer.

Doesn't Want Any, Thanks—National Distillers Products Corp. is opposing plans of Sandusky, O., to build a $3,000,000 sewage disposal plant at a proposed location. The company says the plant might spoil champagne it makes nearby, adds that champagne is very sensitive to odors.

Open Winter Helped—New Hampshire's 15 mi superhighway between Newburyport, Mass., and Kittery, Me., is expected to open June 1—a month ahead of schedule—as a result of the open winter which has allowed construction to be pushed. Motorists will pay a cent a mile toll, truck and trailers more.

New Atomic Capitol—Bechtel Corp. has begun pouring footings for the experimental breeder reactor at the Arco, Idaho, reactor testing station. This reactor aims at "breeding" new fuel to replace that consumed by the fission process.

Brother Can You Spare a Job?—Welfare officials in southeastern Washington are having their problems with 5,000 construction workers who are haunting the Labor Temple at Pasco, seeking work on a projected atomic

(Continued on page 8)

JOB PROVED...

10-Ton "EUC"

Emerging from a tunnel which leads to an underground loading area, this Model UD starts up the haul road to the crushing plant at C. A. Langford Stone Company in Tennessee.

The Acme Construction Company uses this 10-Ton Rear-Dump on a highway construction job at Matoaka, W. Va. The "Euc" is loaded with earth and shale by a 1¼ cu. yd. shovel.

Powered by a 125 h.p. diesel engine, the Model UD has a top speed of 35.7 m.p.h. and plenty of power for steep grades. The 860' haul road at the C. A. Langford quarry near Cookeville, Tenn., has a maximum grade of 10%.

High dumping angle and fast-acting Euclid hoist assure quick dumping. Here the "Euc" dumps a capacity load of limestone into crusher at the H. & R. Stone Company quarry at Ridgeville, Ind.

Built for jobs requiring a smaller capacity hauling unit for heavy off-the-highway service, the 10-Ton Rear-Dump Euclid has made good ... hauling more tons at less cost in mines, quarries, construction and industrial work. Owners like the Model UD because it is easy to handle ... has ample power and speed ... and can do a wide range of jobs economically.

You can depend on the 10-Ton Euclid for greater job profits and long service life. Your Euclid distributor will be glad to discuss your job requirements ... write or call him today for information on the Model UD Rear-Dump or the complete line of Euclid earth moving equipment.

THE EUCLID ROAD MACHINERY CO.

CLEVELAND 17, OHIO

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EUCLIDS *Move the Earth*

STOP RUST!

YOU can STOP RUST... PREVENT RUST... on *any* rustable metal surface with RUST-OLEUM. Every day, rust eats away on your metal tanks, buildings, fences, stairs . . . everything metal inside and outside your plant. Yet, rust *can* be stopped and protection given economically with RUST OLEUM.

For more than a quarter of a century RUST-OLEUM has been *proved* under severe conditions of weather, fumes, salt air, salt spray, and other rust producing conditions. Railroads, shipyards, builders, refiners . . . nationally known users* in almost every field of industry . . . have found RUST-OLEUM the economical way to stop rust and prevent further rust. Architects, builders, engineers, maintenance men now specify RUST-OLEUM for primer, "shop coat", and finish coats.

RUST-OLEUM adds extra life to metal buildings, equipment and other metal surfaces and can be applied over already rusted surfaces without extensive surface preparation. Yet, RUST-OLEUM costs no more than most quality materials.

RUST-OLEUM not only protects—it beautifies as well! RUST-OLEUM is available in a large selection of colors including aluminum and white. It spreads evenly . . . and dries free of brush-marks in 4 to 12 hours, depending on conditions, to a tough, pliable film that protects against rust.

Be sure you get *only* genuine RUST-OLEUM for positive protection against rust! Specify *RUST-OLEUM* to your contractor or architect on any new construction, remodeling or maintenance work.

RUST-OLEUM is stocked and sold by leading industrial distributors in all principal cities of the United States and Canada. See Sweets for complete catalog and nearest source of supply, or write us direct for complete information.

*Names on request

RUST-OLEUM CORPORATION

2534 Oakton Street • Evanston, Illinois

(*Continued from page 6*)

expansion at the Hanford Works. Major hiring isn't to start until April. Hundreds more are barred from the union until the present surplus is employed.

New Mexico's First—A 520-ft highway tunnel has been opened to traffic between Alamagordo and Cloudcroft, N. M., the first in that state's road system. Henry Thygesen & Co., Albuquerque, was contractor.

Correction—The bucket shown in the picture caption on page 27, ENR Feb. 9, is a clamshell bucket of course. So are the others being used to hoist rock out of two fault zone treatment shafts at Hungry Horse Dam.

Danger Spot Cleanup—St. Louis will receive, soon, an engineering survey which will recommend early elimination of five grade crossings and later construction of more over- or underpasses to provide additional separations. Most important, according to the survey, are the Missouri Pacific crossings at South Broadway, Bates Street, McCausland and Southwest Avenues, and the Wabash crossing at Newstead Ave.

More Realistic, Please—Santa Barbara (Cal.) school board has rejected architect's plans for a high school swimming pool and asked that they be redone "more in keeping with what we can afford." The board had set aside $72,000 for a pool, but cost of the compacted fill ran more than 50 percent over the $20,000 estimate. Lowest bid for the pool was $67,990, with only $41,000 left in the pool fund.

Better Planning Needed—Massachusetts' school officials have been urged to take the time for long-range planning. It'll save time and money, they were told by Administrator John C. Marshall, of the state's School Building Assistance Association. He said incomplete planning and inadequate sites are primary reasons for delays in approving school expansion plans.

ENR INDEX READY

The semi-annual index of ENGINEERING NEWS-RECORD, July-December, 1949, is ready for distribution. Copies will be sent automatically to all who have ordered copies of earlier indexes in recent years. Copies will be supplied free of charge to other subscribers who request them. Requests should be sent to the Editor, 330 West 42nd street, N. Y. 18, N. Y.

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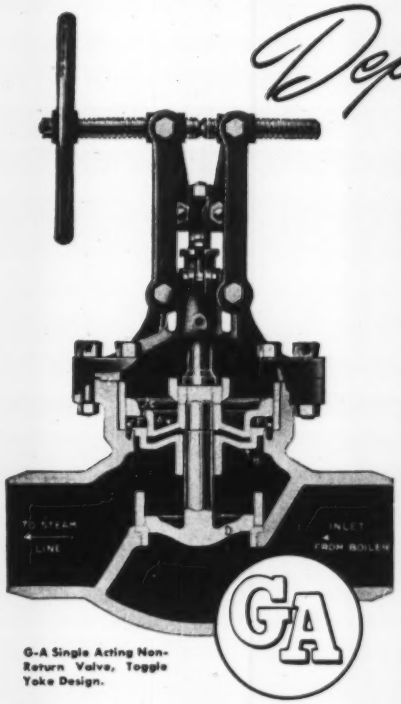

G-A Single Acting Non-Return Valve, Toggle Yoke Design.

For over 35 years Golden-Anderson Valves have proved themselves in the toughest of Industrial and Power Plant applications. These "Engineered Protection" Valves are the safe, economical answer to every flow control problem.

Over 1500 standard G-A Valves, plus unlimited technical resources are available for developing special valves to fit your particular job application. Consult G-A engineers on your most difficult valve problems—without obligation.

LIFE AND PROPERTY PROTECTION
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Valve SPECIALTY CO.
Keenan Building, PITTSBURGH 22, PA.

Contractor trims $19,000 on a single bid

The successful bidder on more than 22 miles of highway sub-drainage for an Eastern State figured the job two ways. First, he bid the job with short section, rigid pipe. Then by figuring an alternate bid using ARMCO Corrugated Metal Pipe he was able to reduce his original estimate by more than $19,000.

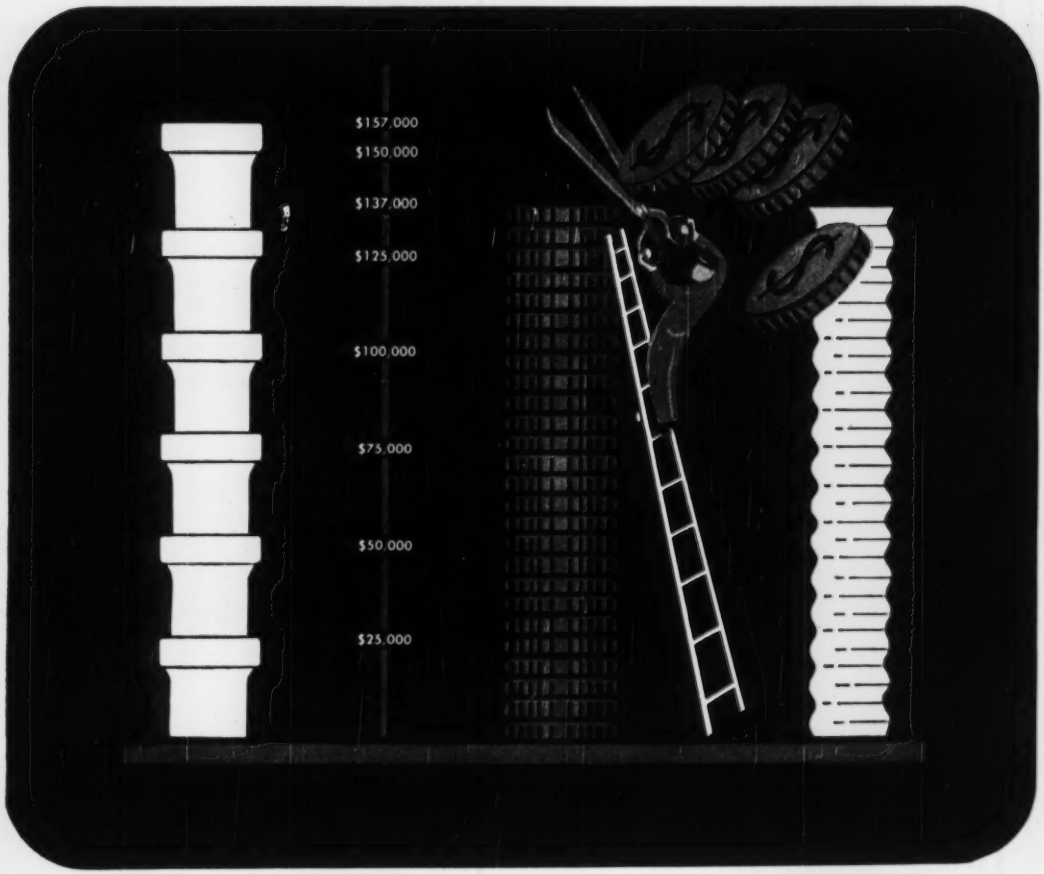
No wonder more and more experienced contractors are being awarded desirable contracts with bids based on ARMCO Corrugated Metal Pipe. Figured on an ***installed*** basis, this pipe saves money in many ways.

Although amply strong, ARMCO Pipe often weighs only one-tenth as much as more massive types. This means low handling and hauling costs. Job costs go down because unskilled labor quickly makes the installation. There is no breakage, no curing, no delay.

Individual lengths of ARMCO Pipe are supplied in any length that can be hauled or handled. No large and expensive equipment is needed for installation. A few men with a rope sling or a small A-frame can handle the largest structure. Connections are made with simple band couplers and there are no bells or massive joints requiring hand excavation.

Bid low with adequate profit by figuring that next job with ARMCO Corrugated Metal Pipe. You will find it ideal for highway, railway, airport and municipal installations. Write for complete data. Armco Drainage & Metal Products, Inc., 2835 Curtis Street, Middletown, Ohio. Subsidiary Of Armco Steel Corporation. Export: The Armco International Corporation.

ARMCO DRAINAGE STRUCTURES



THE CONSTRUCTION WEEK

TOLL ROAD STOPPER?—A potential checkmate for the increasing popularity of toll roads is contained in the new federal-aid highway bill (see p. 17). It's a long way from reality, but those who don't like toll roads think it might do the trick. It's a provision that would let states borrow against future federal-aid allocations for the interstate system and later use the grants to repay such borrowings. To the extent that the device would enable states to get money promptly, the proposal would offset one fact which has contributed to the postwar spate of toll road construction. That would be the relative speed with which revenue bond financing can be achieved, as compared with the 'stand-in-line" financing which some roads face when highway needs outstrip highway budgets. (For a detailed study of postwar toll road expansion—and ENR's opinion of it —see ENR's issue three weeks hence, dated March 30, 1950.)

COMPETITION—If anyone wants evidence that bidding competition is getting tougher, he might consult George Atkinson, president of Guy F. Atkinson Co. Atkinson has bid unsuccessfully on 45 jobs in a row in recent weeks; the company, which averaged one job out of 10 bids from 1946 through 1949, is now satisfied with one job out of 20. President Dwight Winkelman, of the Syracuse, (N. Y.) company bearing his name, has troubles too. Winkelman says his firm has been second-low bidder on $67,000,000 worth of work in recent weeks.

PENSIONS FADING?—Washington labor observers are beginning to believe that the pension provision in labor contracts is beginning to lose its attraction. They point out that (1) U. S. old-age retirement payments are being increased by Congress, and workers might expect payments that would run to $150 per family as a maximum; (2) there is no assurance that the worker will get a pension from his present employer—he might die, change jobs, or the company might go out of business. Observers think rank-and-file labor sentiment is shifting back toward benefits that can be realized immediately.

FIXTURE—Renegotiation—the recovery of excessive profits on military contracts—now looks like a permanent part of government plans, so long as the cold war stays hot. Defense Secretary Johnson is asking Congress to repeat this year's renegotiation clauses in military appropriations for 1951—and it's likely that Congress will go along—since the fiscal worriers keep thinking how negotiations recaptured something like $4 billion paid out for wartime procurement. The military is trying for a bill to make renegotiation a permanent part of its contract procedure, rather than a matter that must be renewed each year. Such a bill would have the effect of cutting some of the red tape now involved—which includes the fact that there are three separate sets of regulations on what shall or shall not be subject to renegotiation (it all depends on the appropriations act the money comes from, what the contract date happens to be, or both.)

POSSIBILITY—Announcement that Aluminum Co. of America will establish a new division at New Kensington, Pa., for the rolling of magnesium sheet, suggests ALCOA's hope that it may have a new building material. The announced purpose of the plant is to produce sheet for airplane construction, but the hope seems to be that with improved productivity and techniques, the price can be brought into a competitive range.

PLAN FOR TAXES—Under the pressure of an unprecedented lobbying drive, Congress is very likely to make broad slashes in excise taxes—and corporations had better start planning now to meet offsetting tax requirements. What's coming, say insiders, is some version of the Mills plan to boost collections of taxes by requiring corporations to pay their taxes earlier—make them pay up in the first half of the year, rather than in four installments through the year. Such a measure wouldn't become effective until 1951—but many companies will want to start planning for it now—anticipate the extra demands it will make on company cash in the first half of next year. Congress frankly doesn't like the scheme, of course, and won't increase collections (but will get more money into the treasury quickly)—but Congressmen don't want to increase taxes either. And this plan seems to offer a temporary way out.

HIGHWAY PACT—Ten southern states are now considering ratification of a reciprocal agreement that would remove many barriers to southern interstate highway commerce. Under terms of the pact, registration fees would be apportioned among the states: A trucker with 50 percent of his business in one state, 25 percent in another, and the rest in a third, would divide his registration fees among the three states in proportion to the amount of business in each state. This probably would be worked out according to the number of trucks owned by the operator.

THREE ON THE AISLE for 'TOP PERFORMANCE'

These tickets are typical of the many that W&T Equipment must *earn* during production. They are evidence that keen-eyed inspectors have tested and re-tested each part before accepting it for *your* job. They are thus your passes to "TOP PERFORMANCE" — the hit show of proven, dependable and economical chlorination in which W&T Chlorinators have starred for over 35 years.

It's no wonder that the show is a steady hit. Take a look at the "producers" background:

W&T research leads in such developments as the Visible Vacuum Principle, Break-Point Chlorination and the Residual Recorder.

W&T manufacturing facilities are equipped to handle, in stride, the precision required in chlorinator manufacturing.

W&T engineers select equipment from a complete line of chlorinators, hand tailor it to each job and then test it under actual job conditions before shipment.

W&T's field organization is conveniently located and always available to supervise the installation of equipment and render prompt service and technical assistance.

For your next job requiring chlorination or chemical feeding, say "W&T" and get a front row seat to "TOP PERFORMANCE."

S-40

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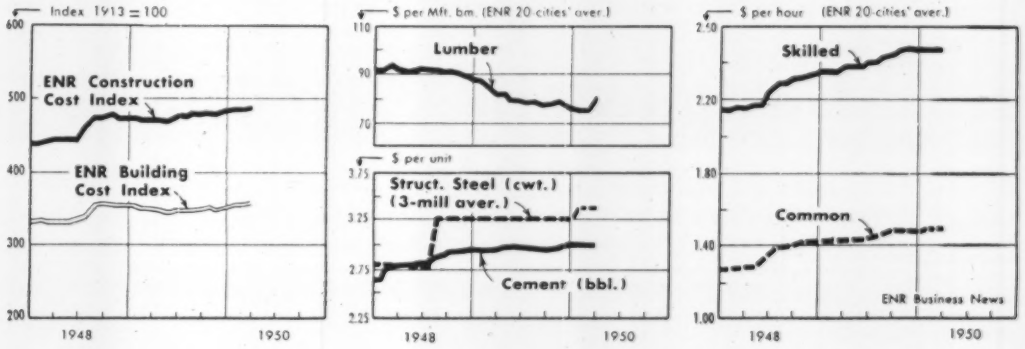
MARCH CONSTRUCTION BUSINESS REPORT



ENR INDEXES (1913 = 100)	Mar. '50	Feb. '50	% Change	Mar. '49	% Change
Construction Cost	488.35	484.85	+0.7	474.80	+2.8
Building Cost	359.98	356.48	+0.9	352.54	+2.1
MATERIAL PRICES (20-cities' average)					
Cement, bulk, per bbl	2.956	2.955	0.0	2.980	−0.8
Structural Steel, (3-mill aver.), per cwt	3.400	3.400	0.0	3.250	+4.6
Sand, per ton	1.973	1.963	+0.5	2.010	−1.8
Lumber, 2x4 Fir, per M ft. bm	87.103	84.441	+3.1	90.870	−4.1
Lumber, 2x4 Pine, M ft. bm	77.483	74.650	+3.8	78.950	−1.8
Common brick, per M	27.987	27.906	+0.3	27.438	+2.0
Ready-mixed concrete, per c. y.	10.313	10.397	−0.8	10.257	+0.5
Structural Clay Tile, 3x12x12 Per M	132.900	132.867	+0.02	131.085	+1.4
WAGE RATES (20-cities' average)					
Common	1.486	1.485	0.0	1.424	+4.3
Skilled (aver. 3 trades)	2.469	2.466	+0.1	2.377	+3.8
Bricklayers	2.733	2.721	+0.4	2.595	+5.3
Structural Ironworkers	2.436	2.436	0.0	2.351	+3.6
Carpenters	2.239	2.242	−0.1	2.186	+2.4

	February		%	Two Months		%
	1950	1949	Change	1950	1949	Change
CONTRACTS AWARDED (thous.)						
Total U. S. (ENR reported)	$686,221	$563,084	+21.9	$1,601,696	$1,128,910	+41.9
Private	412,034	373,904	+10.2	840,085	603,718	+39.1
Public	274,187	189,180	+44.9	761,611	525,192	+45.0
Federal	63,723	19,775	+222.2	339,307	149,672	+126.7
ENR Constr. Volume Index, '13 = 100.	305	255	+19.6	356	255	+39.6
NEW CONSTRUCTION CAPITAL						
Total	428,240	405,331	+ 5.6	725,424	764,419	−5.1
State & Municipal Bond Sales	167,524	207,123	−19.1	390,008	365,938	+6.6
Corporate Security Sales	260,716	198,208	+31.5	335,416	398,481	−15.8
Federal (non-federal work)	.....	.....	.....	.....	.....	.....
Federal (federal work)	.....	.....	.....	.....	.....	.....

	January (J) December (D)		%	Twelve Months		%
MATERIAL SHIPMENTS & LABOR SUPPLY	1950	1949	Change	1949	1948	Change
Cement, thous. bbls., Bu. of Mines	11,606(D'49)	12,741(D'48)	− 8.9	206,170(12)	204,329(12)	+ 0.9
Fabr. Struc. Steel, thous. tons, AISC.	131(J)	153(J)	−14.4	1,854(12)	1,994(12)	− 7.0
Lumber, mil. ft. bm., NLMA	2,985(D'49)	2,383(D'48)	+25.3	31,982(12)	35,333(12)	− 9.5
Lumber Prod., mil. ft. bm., NLMA	2,956(D'49)	2,620(D'48)	+12.8	31,986(12)	36,914(12)	−13.3
Contract Const. Employ., thous. BLS	1,992(J)	2,016(J)	− 1.2	(Av.) 2,161(12)	(Av.) 2,165(12)	− 0.1

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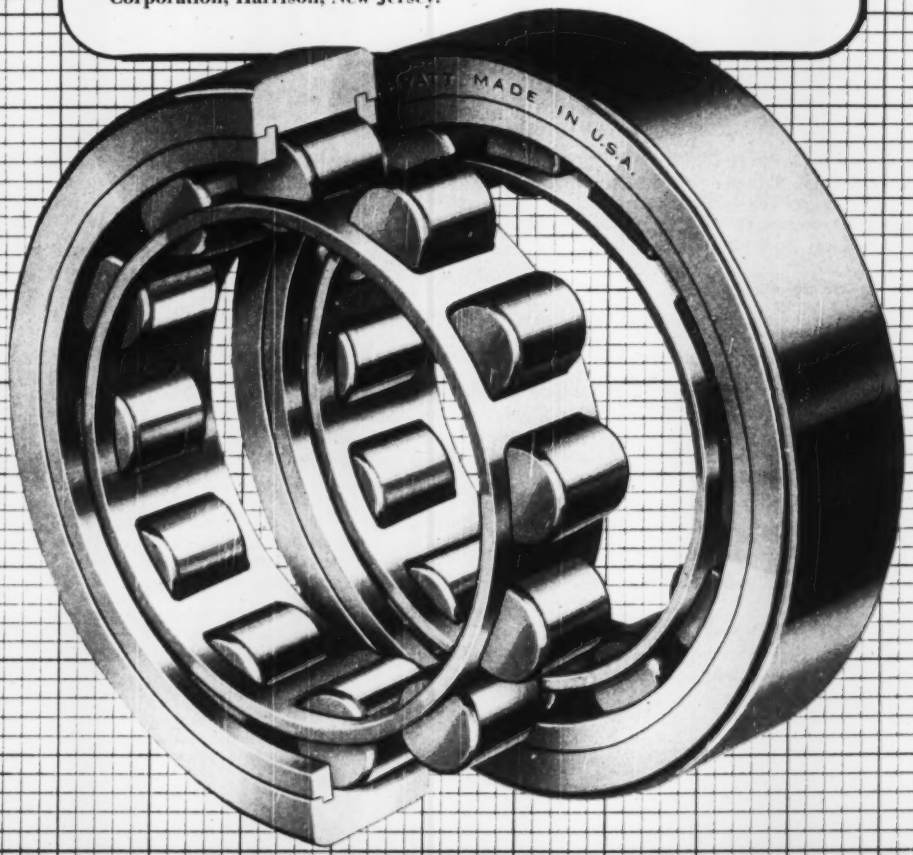

HYATT ROLLER BEARINGS

The Niagara Water Treaty

HIGH PRAISE is due the commissioners who developed the general form for the new treaty between the United States and Canada concerning use of water at Niagara Falls for power purposes. They did not attempt to insure preservation of the falls as a scenic spectacle by limiting the amount of water each country could use for power development, as was done in the old treaty. Instead, they specified the minimum amounts of water that must be allowed to flow over the falls during each season and at different times of day and night—then authorized all the remaining water to be used for power development, if needed. Under the old system of putting a safe upper limit on water diversions, much power went to waste without adding to the beauty of the falls.

The way now is opened for a large increase in power produced at the falls, especially on the New York side. With the additional water that can be diverted under the new treaty, there now will be enough water to justify the construction of a large modern plant which was not the case under the water-use limits of the 1909 treaty.

Accent on Speed

MERELY TURNING IN THE LOW BID is no longer sufficient reason for a contractor to be awarded a Veterans Administration hospital job. For nearly a year now both the VA and the Corps of Engineers, which is handling some of the VA hospital work, has required, in addition, that speed of completion be taken into account. Moreover—and this is the unusual feature of the plan—lowest price and greatest speed of completion are combined mathematically to measure the actual low bid.

Here, indeed, is a true reflection of that distinctive quality that the American construction industry often lays claim to: building faster and, therefore, with a greater show of job-to-job progress than anywhere else on earth. The only ways to achieve greater speed are either through greater efficiency or through the exercise of new forms of ingenuity. Success on either score spells progress.

Consider what was done on the latest job to be let—the VA hospital in Boston. The Corps of Engineers estimate of time was 730 days. The low bidder promised to complete the job in 100 days less. Several of the other 13 bidders were also substantially under the estimate. The formula is to add $700 a day for each day of estimated completion time in excess of the lowest number of days promised by any bidder. A contractor's dollar price might be above several others, but if his estimated time was low enough the low dollar bidders would be raised above him when the bid evaluation was made. Or his dollar bid could be low enough that he could "give away" a number of days on completion time and still get the job. On the Boston job, McCloskey & Co. of Philadelphia was low on both dollars and time—13% and 14% respectively. On the evaluated basis it was 3% under the next bidder and 18% under the high bid.

Such a contracting procedure has much to recommend it on certain types of jobs—those on which unknown conditions are not too numerous. It adds another facet to competitive bidding. It widens the gulf between contracting and force account work as ways of handling construction; doing the Boston job force account would hardly call forth any herculean efforts to beat the 730-day estimate. And finally this type of time-premium contract spotlights the superiority of private enterprise over any other type of business system. Only under the incentives provided by competitive private enterprise can the accent be placed on speed and ingenuity.

Going Abroad?

AMERICAN CONTRACTORS and engineers eyeing the opportunities for foreign operations need to take careful stock of their chances before they leap. These chances vary from country to country, between different types of jobs and according to the economic conditions of the moment. These caution signs were discovered by ENR correspondents abroad, in a survey whose results are reported in this issue.

As important, however, as proper respect for danger signals is another revealed fact: Opportunities do exist for those who will diligently search out the job here and there upon which the application of American methods will yield definite advantages. These methods might find expression in highly mechanized operations but, more frequently, organizational intelligence in combining some machine work with local manual labor is what is required.

Exporting American construction practices and attitudes in toto offers an appealing dream—but dream it had best remain. The most convincing reason for this is in the comparative pay received by the American and the foreign construction worker, which the survey dramatically spotlights. The American receives 2 to 20 times as much. He certainly can't be exported at those rates, and even the machine that he operates has to compete with manual labor costs that make its economic justification subject to an entirely new set of rules.

Despite the difficulties, it would be most unfortunate for American contractors and engineers to adopt an isolationist attitude with respect to foreign construction pioneering. Our survey emphasizes the difficulties, but it does not entirely hide the opportunities nor fail to point up the challenge.

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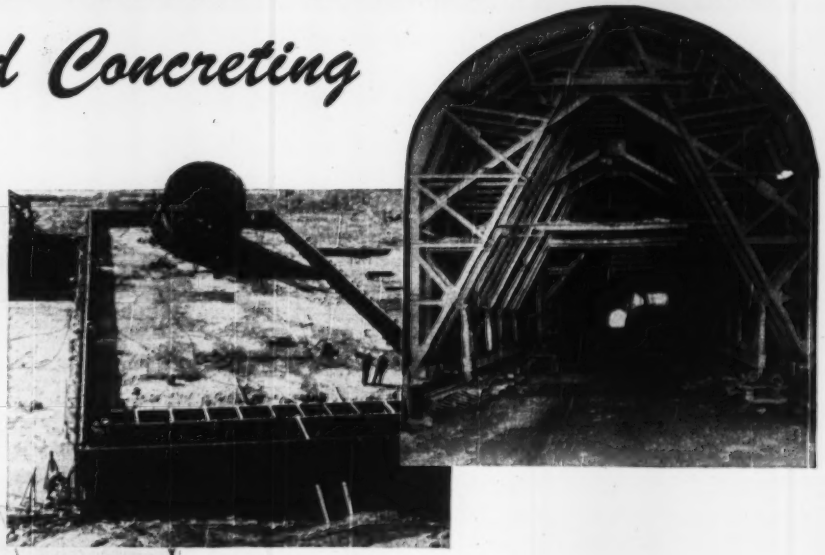

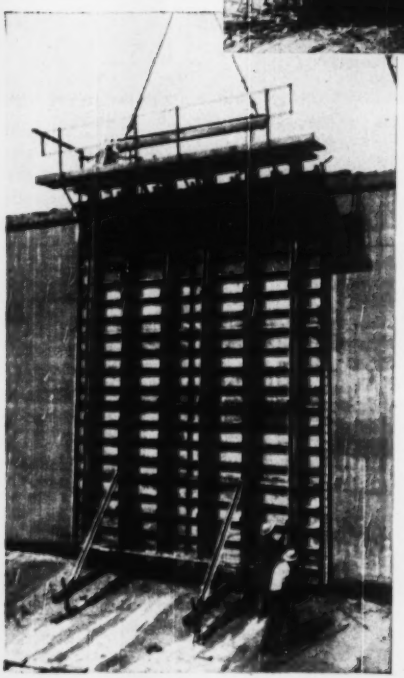

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ENGINEERING NEWS-RECORD

MARCH 9, 1950 VOL. 144 NO. 10

Road-aid bill contains new item for interstate system

Whittington measure, for fiscal 1952 and 1953, adopts many AASHO recommendations, including 75-25 matching basis — Total fund authorization below request

Hearings have begun on federal-aid highway legislation that would add $120 million yearly to the present aid level of $450 million per year.

In addition to boosting federal road allocations, the bill, introduced by Rep. William Whittington, Mississippi Democrat, goes a long way toward meeting the recommendations of the American Association of State Highway Officials (ENR Dec. 1, 1949, p. 13). Effective in the fiscal years 1952 and 1953 (the first starts July 1, 1951), the new bill would:

1. Authorize $570 million yearly of federal assistance, $70,000,000 above President Truman's budget request, but $240 million less than AASHO recommended.

2. Earmark $70,000,000 for the interstate system, the first such specific grant. AASHO wanted $210 million.

3. Authorize the distribution of this $70,000,000 on a 75-25 matching basis with states. This liberalizes the conventional 50-50 matching basis, and was recommended by AASHO for the interstate system allocation.

4. Permit states to speed their interstate system programs by borrowing funds and using federal allocations for this system to repay the principal (not the interest). AASHO wanted this provision. (See p. 11.)

5. Allocate the newly authorized $70,000,000 for interstate systems solely on the basis of state population, as requested by AASHO, rather than on the current basis, which involves population, miles of post road, area.

6. Permit 25 percent of the federal aid for primary and secondary systems to be expended interchangeably on either.

7. Shift from the state to the county or city the maintenance responsibility for federal-aid roads in those cases where the state does not bear the maintenance responsibility. Improper maintenance would bar further federal aid to the city or county.

8. Increase from one-third to one-half the federal participation in the cost of right-of-way purchases on the federal aid system. But the bill does not include AASHO's recommendation that the federal government advance states $100 million for right-of-way acquisitions.

9. Reimburse states which require or assist county highway departments to maintain adequate engineering forces as a prerequisite for state assistance to the county. This reimbursement would come from federal-aid secondary system funds and would be limited to $10,000 per county per year. AASHO had rejected this recommendation as impractical.

A much more generous highway-aid bill was to be introduced in the Senate this week by Chairman Dennis Chavez, New Mexico Democrat, of the Public Works Committee. His bill was expected to propose more than $850 million yearly in federal road assistance. Aimed at the rural local road adherents—supporters of the Kerr-Stennis-Young bills introduced last year—Chavez' measure was expected to propose $100 million yearly in county and township aid. Such proposals have been opposed strongly by AASHP and BPR.

The bill was expected to propose the same dispositions to existing federal-aid road programs as the Whittington measure except for the interstate system, which Whittington would give $70,000,000, Chavez more.

• **Month of hearings**—Hearings on the Whittington bill began Feb. 28 and extended through March 3. They were to resume March 13 and extend through March 22. The bill is before the House Public Works Committee.

The interstate system, beneficiary of the extra $70,000,000 and the liberalized state-federal matching rate, was established by Congress in 1944 as a 40,000-mi trunkline network. So far, 37,800 mi have been selected.

The 75-25 matching ratio has the support not only of AASHO but of the Bureau of Public Roads. BPR endorsed this ratio last year in a report "Highway Needs for the National Defense." That report held that existing deficiencies on the interstate system would require $11 billion to correct.

• **Could add funds**—Despite the bill's authorization of only one-third of the amount which had been asked for the interstate system—$70,000,000 instead of $210 million—states could raise more money for the interstate system by diversions from allocations for the primary system. Such diversions would have to be on a 50-50 matching basis.

Of the $500 million in the bill for other roads, this is the allocation:

45 percent ($225 million) for the primary system ($270 million asked by AASHO).

30 percent ($150 million) for secondary roads ($180 million asked by AASHO).

25 percent ($125 million) for urban roads ($150 asked by AASHO).

These are ratios in existing law.

Upham to resign as ARBA director

Charles M. Upham was to resign this week as engineer-director of the American Road Builders Association. ARBA directors were to act on it at the group's annual meeting this week at Cincinnati.

Allen J. Wagner, ARBA's public relations director, has been agreed on as acting director. Jennings Randolph, president of ARBA's airport division and assistant to the president of Capital Airlines, was the foremost candidate for Upham's position. Harold F. Hess, executive vice president of the Construction Industry Manufacturers' Association (which forms ARBA's manufacturers' division) also was a candidate.

Differences between Upham and ARBA's manufacturers' group have disturbed the organization since first plans were made for the 1948 road show, at Chicago. As exhibitors, manufacturers supply all the funds for ARBA's expositions, thus wanted to run the show their own way. Upham, and most contractor members, wanted to keep the road shows under ARBA.

Influential manufacturers have been trying since 1948, to unseat Upham who planned to retire in 1952, at 65.

(Continued on page 21)

Competition for construction jobs is at peril point for many firms

AGC convention at San Francisco buzzes with warnings that, despite record volume, it's hard to win bid competitions

L. L. Wise
Associate Editor

Job competition—so keen that it may eliminate some construction firms, despite the record volume of work (see p. 22)—was woven through the formal and informal proceedings of the Associated General Contractors 31st annual meeting at San Francisco last week.

It was heard from the rostrum: Edwin G. Nourse, former chairman of the Council of Economic Advisors, indicated in his address that the rigors of competition inevitably would be too much for some firms, although he predicted a strong industry would survive.

It was heard in the corridors (see p. 11).

It was patent from AGC's survey of chapters, findings of which were released as the convention opened. (See ENR Construction Trends next week.)

• **Wide stabilization needed**—W. Walter Williams, chairman of the Committee for Economic Development, cautioned the meeting on another peril. He said "there is a growing tendency to make the construction industry a whipping boy," butt of various plans for stabilizing the nation's economy. He said the industry is too complex to fit a simple plan.

As for the industry itself, Williams said, CED has found its stability record better than average. So the job is to stabilize the economy through fiscal and monetary measures, he said. Wise management of public works construction can help in this and help the industry as well. Williams is president of Seattle's Continental, Inc., as well as CED chairman.

• **The road problem**—Highway financing was a major topic. Dewitt C. Greer, Texas highway engineer and president of the American Association of State Highway Officials, said road construction is not keeping pace with demands for it. He warned this can affect the country's economy and urged more investment in highways. Taxes so invested, he declared, will be repaid ten-fold.

L. I. Hewes, western headquarters chief of the Bureau of Public Roads until his death two days after addressing the meeting (see p. 19), advocated bond financing of the most profitable mileage in each state. Revenues from such mileage, he pointed out, can be pledged for the purpose of debt service.

A highlight of the convention's division sessions was an open meeting of the Joint Cooperative Committee of AGC and AASHO.

• **Cost cutting stressed**—Outgoing AGC President Adolph Teichert, Jr., stressed the industry's concern with cost cutting in his presidential address.

"Although the progress does not make spectacular news," he declared, "we need to keep working with architects, engineers, public officials and others to keep perfecting contract documents, bidding and awarding procedures, specifications and designs so that even greater economies in good construction can be made."

Much of the time of divisional meetings was devoted to cost cutting—through safety, progress of national joint cooperative committees, relations with the Corps of Engineers and the Bureau of Yards and Docks, apprentice training, labor relations, contracts and specifications and others.

• **Federal debt settlement**—Settlement of contractual relations with the federal government was another knotty problem. Capt. A. D. Hunter, deputy chief of the Bureau of Yards and Docks, warned the meeting that the U. S. Comptroller General has the right to deduct from money owed contractors by the federal government enough funds to settle government claims against the contractors. This is true, he asserted, even though the claim may arise from a contract unconnected with the claim in which the funds are withheld.

The Comptroller General is the federal reviewing authority for all financial transactions involving the government, Hunter emphasized. Thus, even though an agency has settled a contract, his review governs, even though it be made years after the settlement. If such a review results in reversal of an earlier settlement, the contractor may then find money deducted from the settlement of a current contract, whether the two contracts were let by the same agency.

Henry G. Sheehy, vice president of the Massachusetts Bonding and Insurance Co., cited the legal background for this situation. The U. S. Supreme Court, in the Munsey case, ruled that the Comptroller General may make such deductions, Sheehy said. And he pointed out that the situation may be carried farther. Contractors on joint ventures, he suggested, might find themselves paying the income taxes for which an associate was liable. Sheehy urged contractors to obtain from Congress a law ending the Munsey rule.

• **How to help building research**—Contractors are the most effective agencies to test the results of building research. And they're a good source of problems, too, according to William H. Scheick, executive director of the Building Research Advisory Board. In addition, Scheick declared, contractors can perform research, particularly in such fields as construction methods, man-

AGC CONVENES—Dr. Edwin Nourse, resigned chairman of the Council of Economic Advisors, was a featured speaker at the 31st annual convention of the Associated General Contractors at San Francisco last week. Nourse, second from right, is shown with H. E. Foreman, AGC's managing director, left; Walter Williams, president of Continental, Inc., of Seattle; and Adolph Teichert, Jr., outgoing AGC president, left.

hour efficiencies and material use.

In its resolutions, AGC concentrated on recommendations to awarding agencies regarding contract procedure. It was suggested that:

1. An all-inclusive general contract be awarded for each project, to take advantage of the responsibility and coordination available from a competent organization.

2. No policy or procedure be adopted which would disrupt established industry practices or relationships between employer and worker.

3. General contractors be allowed to furnish all materials, to achieve better coordination and economy.

4. The standard federal construction contract be amended to give contractors the right to appeal from the decision of a contracting officer and his department head.

AGC also endorsed the recommendations of AASHO on highway financing (see p. 17), and resolved against creation of any new valley authorities.

The association refused again to establish a sinking fund for pensioning its employes. The reason was the same as before: AGC wants no precedent which could complicate bargaining with labor organizations.

New president is Walter L. Couse, president of a Detroit firm bearing his name (ENR March 2, p. 13). Glen W. Maxon, of the Maxon Construction Co., Dayton, is vice president.

J. G. Robinson, assistant manager of AGC's Mississippi chapter, won the Constructiondizing Award for his work in publicizing the construction industry in his state.

The Cashman Trophy, for membership, was won by Minnesota.

G. M. Schmeltzer, executive secretary of the Pennsylvania Builders chapter, won a new award for accident prevention.

Lawrence I. Hewes dies, western head of BPR

Lawrence I. Hewes, 73, chief of the western headquarters of the U. S. Bureau of Public Roads, died at San Francisco, Calif., March 2. At the time of his sudden death he was working on a revision of his well known treatise, "American Highway Practice," prepared with Prof. C. H. Oglesby of Stanford University.

Dr. Hewes was graduated from Dartmouth in 1897 and took his Ph.D. at Yale in 1901. After service as instructor at Rhode Island State College, Sheffield Scientific School, and Whitman College, he joined the Federal Office of Public Roads in 1911, and rose through the ranks to the position in the Bureau of Public Roads which he held till his death, long after the customary retirement age.

Inter-union dispute hits Los Angeles job

Water and Power Department rejects bids, indicates it will proceed by force-account on disputed work

Caught between the implied threats of two opposing labor forces, the Los Angeles Department of Water and Power rejected all bids last week on two of three construction proposals, awarded one contract, and indicated it would proceed with the remaining work by force-account.

The dilemma was seen by observers as a part of a tangled labor situation, where rising unemployment in the area has given rise to a series of demands for stricter observance of union work rules—shorter work days and the like.

Traditionally, representatives of the six basic building trades and of the area's 20,000 contractors sit down to a joint bargaining table to set wage patterns that are general in all of Southern California.

• **Power project involved**—The water and power department had called for contractor bids on its planned 255-mi transmission line between the Owens Gorge power plant and Receiving Station E, near Los Angeles. It called for bids in three parts, on an either-or basis. Proposal 1 was for footings and erection of towers; Proposal 2 for installation of ground wires, conductors and appurtenances; Proposal 3 a combination of the first two.

Immediately, the department was in the middle of a controversy between the AFL building trades unions and the AFL International Brotherhood of Electrical Workers, Local 18. With some 4,000 of its members on the department's force-account payroll, the electrical union weighed in with a threat of trouble, if the contracts were awarded to private contractors. The building trades, meanwhile, were known to be as adamantly opposed to force-account work.

Looking for a way out, the department then announced it would award a contract only for Proposal 2 of the offer, rejecting all bids on Proposals 1 and 3, with the implication that all supplementary work would be done by force-account. The award was given to Joe Bush Service, El Centro, on a low bid of $586,395.

• **Other demands**—While this dispute appeared to be approaching a fast boil, long-range construction industry troubles were simmering along in negotiations between the area's 20,000 contractors and the unions.

As of last week, the unions had announced a basketful of new and restrictive demands, as basis for any new contracts. These include:

1. A seven-hour day for the present eight-hour wages; and five to eight cents more wages per hour.

2. Practically, a closed shop: Employees hired must not only belong to the proper AFL union, but they must also be "such a member as would get clearance from union officials before being employed."

3. Permission to quit 15 minutes early—to pick up tools.

4. Paid vacations, one week for an employee of a year's standing, two weeks for two.

5. Very nearly secondary boycott privileges: Materials would not be accepted for a job from a truck driver not a union member, nor would any materials be handled that were boycotted by the unions—including "materials judged likely to lead to a disturbance on the job."

Counter proposals are due Mar. 15.

Cement producers accept new Kansas requirements

Cement companies in Kansas, after first refusing to agree to supply contractors with cement ground to meet the new specifications of the Kansas State Highway Department, have advised the department that they will meet the new specifications. Their original refusal resulted in the department's receiving no bids on a concrete paving job for which bids were opened recently.

Six Midwest cement companies have agreed to furnish the new type of cement at no extra cost over standard portland cement to bidders on 22 miles of two-lane concrete pavement, for which bids are to be opened March 14-15.

The new cement is coarser ground than ordinary cement and differs in chemical composition. The two principal differences are a lowering of tricalcium silicate content and a closer limit on the amount of free lime in the new cement.

The department's new specifications were adopted in the belief that more durable pavements will result from using cements more like those that were used 20 years ago. The principal changes in the construction specifications are: (1) Elimination of vibrators from the concrete finishing machine and substitution of mechanical tamping; (2) curing with moist burlap for the first 24 hours, followed by 20-day curing with wet earth; (3) contraction joints ¼ x 2½ in. deep, spaced 20 ft apart and filled with an asphaltic compound, will be cut with a concrete saw after concrete has taken its initial set; and (4) full-depth expansion joints will be spaced 500 ft apart and filled with redwood.

More power at Niagara provided by new treaty

Congress and Canadian Parliament are expected to approve new agreement replacing 1909 and later treaties

A treaty that will permit a large increase in power generation at Niagara Falls was signed in Washington Feb. 27 by representatives of the United States and Canada. Before it becomes effective, this treaty must be approved by the Canadian Parliament and the U. S. Senate, but no opposition in either body is anticipated.

Diversion of water from above Niagara Falls for power development now is controlled by the Boundary Waters Treaty of 1909 between the U.S. and Great Britain and by supplementary temporary agreements made in the years 1940 to 1944 when additional power was required for war purposes. The 1909 treaty permitted diversion of 56,000 cfs, of which 20,000 cfs were on the U. S. side and 36,000 cfs on the Canadian side. The more recent agreements raised the total to 87,930 cfs, of which 32,500 cfs were on this side of the border and 55,430 cfs in Ontario.

• **Plan equal division of water**—The new treaty does not set specific amounts that can be diverted. Instead, it requires that not less than 100,000 cfs must be permitted to flow over the falls during the peak of the tourist season (April 1 to Sept. 15) between the hours of 8 a.m. and 10 p.m., and not less than 100,000 cfs between 8 a.m. and 8 p.m. during the remainder of the tourist season (Sept. 16 to Oct. 31), and not less than 50,000 cfs at any other time. Any additional amounts may be diverted above the falls for power purposes, which amounts shall be divided equally between the U.S. and Canada.

The annual average discharge of the Niagara River from 1860 to 1946 was 197,000 cfs. Low flows come generally in October, at which time the Federal Power Commission estimates the minimum monthly flow at 158,000 cfs.

The FPC estimates that under the new treaty, 76,100 cfs will be available for power generation during the tourist season for 100% of the time, and that 100,000 cfs can be diverted around the falls for 98% of the winter months and 70,000 cfs past the rapids below the falls.

Because of the much larger diversions in Canada at the present time, the United States will benefit most by the proposed arrangement. The FPC staff, in a study made last year, determined that 1,127,000 kw additional capacity could be installed on the New York side, replacing in part the existing plants that are obsolete, which would add 7.9 billion kwh to the power resources of the region (ENR Oct. 27, 1949, p. 33).

The new treaty provides for the construction of low weirs above the falls in addition to those built during the war to obtain a better distribution of flow over the falls.

Specifically exempted from the provisions of the treaty is the water that the Ontario Hydro-Electric Power Commission diverts into Lake Superior from the Hudson Bay drainage basin, which amounts to about 5,000 cfs.

500-YEAR FOUNDATION—Here's a glimpse of the new foundation which is being erected under the White House, at Washington, to support a building federal officials say should be good for another 500 years. One section in the picture above is already in place and digging is going on for a new section. The two will interlock. (Reni Photo.)

Repairmen quit operators, join machinists in Calif.

The Machinists union again has whittled away from the AFL Operating Engineers the repair mechanics in a construction contractor's repair yard.

In an election in the yard of Brown-Ely Co., at Corte Madera, Cal., the National Labor Relations Board has refused to include the ballots of three equipment operators in the unit of repair mechanics, thus giving a close victory to the Machinists.

NLRB ruled, as it did earlier in the Strong Co. case, in Utah (ENR Jan. 12, p. 28), that emergency repair work done by the equipment operators was only incidental to their principal task of operating equipment.

Co-op homes defended by Foley before NAHB

HHFA administrator calls it a private enterprise proposal giving help comparable to that now extended

Sharp differences of opinion on today's home building problem were expressed by builders, federal officials, planners and economists in Chicago at the sixth annual meeting of the National Association of Home Builders.

Striking back at charges that the middle-income cooperative housing bill now before Congress is anti-private enterprise, Administrator Raymond A. Foley, of the Housing and Home Finance Agency, disclosed that the measure merely contemplates private enterprise in both construction and financing, with special aids comparable to those already made available in multi-billion dollar volume to building, through the regular speculative channels.

Among the future needs to be met in the housing industry, Foley declared, are: greater prefabrication, both on-site and in-plant; more private, long-term equity capital which can be satisfied with a low interest rate; more privately built, family-size rental housing at much lower rents; more moderately priced houses for larger families; and a more responsible attitude on the part of lenders and builders alike to the cooperative idea of housing.

• **Drop in construction**—A sharp overall drop late this year in the private house-building market was predicted by James C. Downs, Jr., president, Real Estate Research Corp., Chicago. He also predicted a drop in the number of high-price apartment starts as a result of FHA ending its operations under Section 608. Private capital will hesitate to enter that market, he fears.

In contrast to Downs' gloomy predictions, Thomas P. Coogan, of Miami, reported that the mortgage finance picture is improving. Investment funds appear to be ample, and all insured 4.5 percent mortgages are finding a ready market at a reasonable premium. One of the principal difficulties, however, is the failure of commercial banks generally to participate in construction financing for homes.

• **New officers**—Thomas P. Coogan, Miami, Fla., is the new president of the NAHB, succeeding Rodney Lockwood, Detroit. New vice-presidents are W. P. Atkinson, Oklahoma City, and A. E. Brockbank, Salt Lake City. Joseph Haverstick, Dayton, Ohio, was elected secretary, and Nathan Manilow, Chicago, was re-elected treasurer. Twenty regional vice-presidents also were elected, and 8 new directors. Next year's meeting will be held in Chicago, Jan. 21-25.

Road officials hit federal-aid boost

Association of Highway Officials of North Atlantic states wants no increase in U. S. share of costs

Highway officials of the North Atlantic states recently exchanged experiences in financing road work from sources other than current legislative appropriations. The occasion was the annual meeting of the Association of Highway Officials of the North Atlantic States.

One significant result of the meeting was a resolution opposing any increase in the national government's proportionate share of project costs.

The resolution was based on a talk by E. L. Schmidt, chief engineer, Pennsylvania Department of Highways, who advocated (a) no material increase in federal aid (b) no further distinctions in federal aid systems (c) no further increases in the proportionate share of federal aid participating in highway construction and (d) no further expansion of federal activities in the management of state highway affairs. The proportionate increase would lead to expansion of federal management, impairing the effectiveness of state organizations, which now have attained mature competence in balancing their own states' peculiar problems with national problems, he said.

Toll-road experiences were cited by representatives of Pennsylvania, New Jersey, Connecticut, New Hampshire and Maine.

Francis L. Brown, deputy director of the New York Department of Public Works, cautioned the group on toll roads, declaring that as toll roads and structures increase in number, sooner or later the need for frequent collections of tolls and their resultant stifling of free transportation will be injurious to the country's welfare.

New officers of the association include Ray F. Smock, Pennsylvania, president, and Spencer Miller, Jr., New Jersey, vice-president. A. Lee Grover and Kenneth D. Rice continue as secretary-treasurer and assistant secretary-treasurer, respectively

N. Y. C. to get rain study

New York City was to receive a study this week concerning the possibility of inducing rain over its upstate watershed. The report has been submitted by Wallace E. Howell, meteorologist at Harvard's Blue Hill Meteorological Observatory. Meanwhile, the state legislature has before it a bill to allow the city to seed clouds without fear of legal action.

C. M. Upham to resign ARBA directorship

(*Continued from page 17*)

Recently, several manufacturers notified Upham—through President E. R. Needles—that if he failed to resign at this week's meeting, they'd quit ARBA. Upham agreed to resign rather than see disrupted the organization he'd helped build over 25 years. Defection of even a portion of the manufacturing membership would have curtailed ARBA's program, since the manufacturers' division furnishes two-thirds of ARBA's funds.

Three top jobs emptied in Montana highway dept.

A stiff shake-up has emptied three top positions in the Montana Highway Department. Two of the three were abolished, the other filled by an acting appointee.

C. E. Stahl, who had been state highway engineer since April 7, 1949, resigned. The offices of program engineer and assistant maintenance engineer were abolished. These had been occupied, respectively, by Scott P. Hart and L. P. Howard, the former a veteran of 27 years with the agency.

George Poore, Helena, who had been Stahl's assistant, was named acting highway engineer.

Stahl's resignation was announced first by Highway Commission Chairman Lee Ford, who said it was "in the interests of harmony." Stahl, six hours later, denied any intention of resigning. After a two-hour session with Gov. John W. Bonner and a commission attorney, Stahl announced his resignation on the basis that he would receive payment for March, April and May.

Abolition of the other two jobs followed the next day. Functions of the program engineer will be assumed by the department's planning survey office. Assistant maintenance engineer's functions will be taken over by the maintenance department.

Stahl, who had been construction chief for the Army Engineers at Omaha before going to Montana, said: "I am an engineer, not a politician—that's about all I can say."

Special tag proposed for New York thruway

Committee endorses suggestion for financing New York City-Buffalo project outside road budget

Sale of special licenses to truck operators and motorists who wish to use any part of the projected 468-mi thruway system in New York state has been endorsed by the special committee set up by Governor Dewey to report on the best means for making that project self-liquidating (ENR Feb. 23, p. 17). The Governor wants to speed construction of the project outside the state's regular road-building program. Only a few miles of the thruway had been completed at the end of 1949.

The committee recommends a constitutional amendment that would set up a thruway authority and authorize it to issue $450 million of 40-year bonds backed by state credit. State backing would result in large savings in interest.

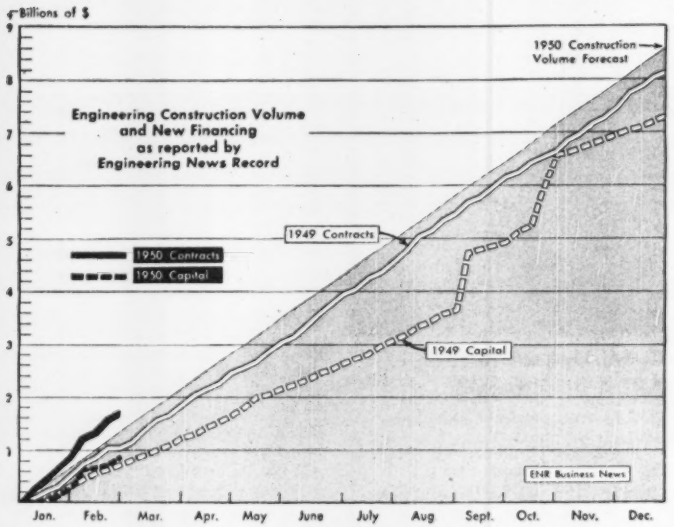
• **Tolls: $5 to $80 yearly**—License fees would range from $5 a year for passenger vehicles to $80 a year for heavy trucks. A review of potential traffic indicated to the committee that these fees would produce enough income to pay off the bonds.

As a minimum of two years will be required to get approval of a constitutional amendment, the committee recommended borrowing money from the state's grade-crossing fund and from the federal-aid highway allotments for the next two years.

The committee making this study consists of Bertram D. Tallamy, superintendent of public works; John E. Burton, budget director; Frank C. Moore, comptroller; James F. Evans, director of state parks; Lewis A. Delafield, a bond attorney; and M. J. Madigan, consulting engineer.

This committee also recommended that the section of the thruway extending down the west side of the Hudson River be carried across the river to a connection with the expressways in Westchester County instead of terminating at the New York-New Jersey line on the west side of the river, as originally planned.

CONSTRUCTION BUSINESS



February volume again smashes records

Contract award volume in February totaling $686 million broke all previous records for that month; it was 22% above a year ago and 8% above February, 1942, the former record. The year 1950 so far is 42% ahead of 1949.

Private contracts in February, paced by mass housing, total $412 million, 10% ahead of a year ago but 4% below January. Private contracts for the first two months of 1950 are 39% above 1949.

Public works contracts in February, $274 million, are 45% above a year ago and the cumulative total to date, $761 million, is also 45% ahead of last year.

Waterworks are up 152%; highways, up 60%; public buildings (other than housing), up 107%; unclassified public construction, up 76%; and private housing, up 85%.

• **All regions gain**—In the first two months of 1950, all regions of the U. S. except the South are far ahead of a year ago, and the South is up but only 3%. In New England, public buildings account for a 146% gain over last year. The atomic energy program has helped Far West volume to go 116% ahead of 1949. The boom in Mid-West contracts, up 106%, is entirely due to private building, both industrial and housing. Private housing dominates the scene in the Middle Atlantic States, where total volume is up 17%, and West of the Mississippi, up 12%.

ENR Construction Cost Index up for March

Construction cost trend for March is up 0.7% and the building cost trend is up 0.9% from last month's record highs, the Engineering News Record cost indexes show.

A 4% increase in the 20-cities average lumber price raised the March ENR Construction Cost Index to 488.35 (1913 = 100,) and the ENR Building Cost Index to 359.98.

Cleveland wages jump

Nineteen AFL trades in Cleveland, including the bricklayers, will get a raise of 12½ cents an hour under a new two-year contract.

The contract will be subject to reopening one year from now only if the cost of living has increased.

Settlement last week followed withdrawal of bricklayers' demand for 42½ cents more and a seven-hour day.

ENGINEERING CONSTRUCTION CONTRACTS REPORTED TO ENGINEERING NEWS-RECORD—FEBRUARY, 1950

ENGINEERING NEWS-RECORD *reports continental U. S. Construction projects of the following minimum costs—waterworks, excavation, drainage and irrigation, $28,000; other public works $50,000; industrial buildings, $68,000; other buildings, $250,000*

Four Weeks—Thousands of Dollars (000 Omitted)

	February, 1950							U. S. Cumulative — Two Months		% Change '49-'50	Canada
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	Total U. S.	1950	1949	Aver. Wk.	Feb. 1950
Public Works											
Waterworks	217	18,269	1,397	1,429	3,722	814	25,869	50,226	19,915	+152	527
Sewerage	773	3,280	185	7,646	2,711	3,252	17,847	34,834	30,123	+ 16	146
Bridges	298	8,036	1,934	1,007	2,247	1,660	15,202	39,921	42,102	− 36	400
Earthwork and waterways	222	2,986	2,873	579	7,164	8,928	22,752	48,774	48,861	− 21	2,230
Streets and roads	10,180	14,386	13,876	1,957	14,950	4,272	59,621	122,745	76,772	+ 60	4,482
Public buildings, residential	4,869	.....	770	.....	1,111	266	7,016	28,782	37,890	− 50	561
Other public buildings	27,378	13,082	16,472	8,532	17,487	16,894	99,645	372,237	180,206	+107	3,236
Unclassified	2,499	1,100	2,264	1,530	5,650	13,162	26,235	64,092	36,323	+ 76	2,453
Total public	**46,436**	**61,169**	**39,621**	**22,671**	**55,042**	**49,248**	**274,187**	**761,611**	**525,192**	**+ 45**	**14,035**
Federal government (included in above classifications)	24,676	971	6,153	2,316	17,133	12,474	**63,723**	**339,307**	149,672	+127	4,538
Private											
Bridges	.....	.....	.....	.....	145	.....	**145**	**1,390**	219	+535	.....
Industrial buildings	822	8,857	6,942	21,410	26,498	4,396	**68,925**	**143,797**	164,155	− 12	13,398
Com'l. buildings, residential	9,552	111,070	45,018	26,496	51,300	39,964	**283,400**	**498,610**	269,122	+ 85	4,750
Other commercial buildings	1,000	7,651	7,508	3,955	17,450	1,212	**38,776**	**143,114**	115,279	+ 24	250
Unclassified	50	3,200	1,125	1,966	14,261	186	**20,788**	**53,174**	54,943	− 3	.....
Total private	**11,424**	**130,778**	**60,593**	**53,827**	**109,654**	**45,758**	**412,034**	**840,085**	**603,718**	**+ 39**	**18,398**
Total Engineering Construction:											
February, 1950 — 4 weeks	**57,860**	**191,947**	**100,214**	**76,498**	**164,696**	**95,006**	**686,221**	.....	.....	.....	**32,433**
January, 1950 — 4 weeks	32,611	204,955	90,779	142,364	149,642	295,124	915,475	.....	.....	.....	27,775
February, 1949 — 4 weeks	10,285	192,713	59,016	30,235	144,375	119,960	**563,084**	.....	.....	.....	35,381
Two Months — 1950	**90,471**	**396,902**	**190,993**	**218,862**	**314,338**	**390,130**	.....	**1,601,696**	.....	.....	**60,208**
Two Months — 1949	36,791	338,347	186,092	106,176	280,884	180,710	.....	.....	1,128,910	.....	63,766
% Change '49 to '50	+146	+17	+3	−106	+12	+116	.....	.....	.....	+ 42	−6

BIDS AND BIDDERS

Major project news received after Construction Reports, page 56, went to press.

Department Store—Frank Messer & Sons, Inc., Cincinnati, has been awarded contract for superstructure of department store in Cincinnati by the Equitable Life Assurance Society, New York, at $5,250,000. Skidmore, Owings & Merrill and Robert Daggett Associates of Chicago, Ill., are architects for the job.

Generators for McNary Dam—$6,556,290 was low bid submitted by General Electric Co., Schenectady, for four generators for McNary Dam powerhouse in Oregon, when U. S. Engineers, Walla Walla, Wash., opened bids March 2.

Housing—Providence Housing Authority, Providence, R. I., plans to construct various public housing projects, on sites yet to be selected. Estimated cost is $11,000,000.

Apartment—W. E. Robertson Co., Los Angeles, will build $4,000,000 apartment in Los Angeles for Chesapeake Building Corp., c/o Max Maltzman, Los Angeles architect.

Hospital—Oakland Hospital Corp., Birmingham, Mich., plans hospital in South Birmingham, Mich., to cost from $3,500,000 to $4,500,000.

Gas Pipe-Line—Texas-Eastern Transmission Corp., Houston, plans 103 miles 16-in. welded-joint gas pipe-line between Providence City and Baytown, Texas. Estimated cost is $3,240,000.

Distribution Center—Safeway Stores, Oakland, Calif., plans distribution center for retail chain store system in Denver, Colo., at about $3,000,000.

Chemical Plant—Phillips Chemical Co., Etter, Tex., is taking bids for the construction of chemical plant expansion at Etter. Estimated cost of the work is $3,000,000.

Hospital—Platt Rogers, Inc., Denver, is contractor for new St. Mary's Hospital, Pueblo, Colo. The project will cost about $5,000,000, and is for the Sisters of Charity, Cincinnati. Fisher & Fisher, Denver, are architects and engineers for the hospital.

Road—New Jersey Turnpike Authority, Trenton, let the ninth contract for the New Jersey Turnpike when award was made for 24.5 miles from Allentown to Raritan River, Section 4, to Grandview Construction Co., Mount Vernon, N. Y., at $2,716,065. This brings total awards to $13,920,951 on the 118-mile superhighway.

Plant Addition—Darin & Armstrong, Inc., Detroit, will construct superstructure of plant addition, at Plymouth, Mich., for the Detroit Transmission Division, General Motors Corp., at about $2,000,000. Argonaut Realty Co., Detroit, is engineer.

Residences—Country Club Development Co., Leavenworth, Kan., will construct 200 residences in Leavenworth to cost about $2,000,000.

Office—Gulf Building Corp., Houston, will open bids March 16 for office building in Houston. Complete cost will be $2,500,000. A. C. Finn, Robert J. Cummings and R. F. Taylor, all of Houston, are architects.

Divided Highway—James D. Morrissey, Inc., Philadelphia, was low bidder at $2,616,669 for Schedule 1, divided highway from King of Prussia to Gulph Mills, Montgomery County, Pa., when Pennsylvania Highway & Bridge Authority, Harrisburg, opened bids. Schedule 2, a bridge on same road, was opened at same time with Francis A. Canuso & Sons, Philadelphia, low at $772,361. The road is part of the Schuylkill Expressway to link Turnpike with Philadelphia.

Concrete Canal—Boh Brothers Construction Co., New Orleans, submitted low bid of $1,967,579 for concrete-lined and covered canal in Orleans Ave. and Jefferson Davis Parkway, New Orleans, when Sewerage & Water Board opened bids March 1.

Gasoline Plant—Superior Oil Co., Houston, is taking bids from selected list bidders to construct gasoline plant at Altair, Tex., with estimated cost about $1,500,000.

Housing—District Public Works Office, First Naval District, Boston, will take bids March 17 for qualifications for constructing, operating and managing housing on or near Quonset Point Naval Air Station and the Supply Depot at Davisville, both Rhode Island. Estimated cost is $1,300,000.

Snowsheds—C. V. Wilder Co. and Gassland Co., Inc., Bellingham, Wash., have been awarded contract for constructing 1,800-ft reinforced concrete snowsheds on Snoqualmie Pass Highway, King and Kittitas Counties, Washington, by the State Highway Department, Olympia, at $1,015,621. W. A. Bugge is state highway engineer of Washington.

COSTS AND VOLUME

ENR INDEX NUMBERS

Index Base = 100		1913	1926
Construction Cost	Mar. '50	488.35	234.75
Building Cost	Mar. '50	359.98	194.59
Volume	Feb. '50	305	134

Activity This Week

As reported to ENR (in millions of dollars)

Amount of contracts let

	Week of Mar. 9 1950	Cumulative 1950 (10 wks.)	Cumulative 1949 (10 wks.)	% chge
Federal	$11.9	$358.6	$217.9	+65
State & Mun.	76.5	537.3	476.6	+13
Total Public	$88.4	$895.9	$694.5	+29
Total Private	122.2	1,049.8	737.6	+42
U. S. Total	$210.6	$1,945.7	$1,432.1	+36

Contracts by type of work

	This Week	Cumulative 1950 (10 wks.)	Cumulative 1949 (10 wks.)	% chge
Waterworks	$3.1	$55.2	$24.1	+65
Sewerage	1.5	40.3	37.0	+9
Bridges	19.1	62.4	72.7	−14
Highways	26.3	161.8	91.6	+77
Earthwork, Waterways	9.3	62.9	85.8	−27
Buildings, Public	22.3	437.4	338.1	+29
Industrial	21.7	187.0	197.7	−5
Commercial	66.1	770.8	477.5	+61
Unclassified	41.2	167.9	107.4	+57

NOTE: Minimum size projects included are: Waterworks and waterway projects, $25,000; other public works, $50,000; industrial buildings, $68,000; other buildings, $250,000.

New capital for construction

	Cumulative 1950 (10 wks.)	Cumulative 1949 (10 wks.)	% chge
NON-FEDERAL	$863.1	$944.9	−9
Corporate Securities	398.8	465.2	−14
Excl. Housing	303.8	384.0	−21
Housing	160.6	95.7	+68
Total Capital	$863.1	$944.9	−9

U. S. Construction Workers Fare Better by Far

ENR survey also discloses the wages, material prices and working conditions that engineers and contractors will encounter if they start looking for foreign business

THE NEXT TIME any of your workmen grouse about their wages tell them that you are figuring a job in London, and if you get it you will send them over at a pay rate twice what British workmen get.

If they are carpenters or bricklayers, that will come to just 83 cents an hour. If they are laborers, 68 cents will give them a 100% bigger take than their British cousins.

The fact that even then the bricklayer would be making only ¼ of his U. S. pay and the laborer less than ⅓ would hardly make the proposition attractive. But it could scarcely fail to point up their luck in being Americans.

Nor is any force left to the argument that the foreign worker needs less because his cost of living is less. There is more inflation in most foreign countries than in the U. S. What the foreign worker has less of, of course, is a high standard of living.

• **The American worker** can buy things with his earnings that the foreign worker has only dreamed of, and he can cover his necessities of life with a much smaller expenditure of effort and time. The U. S. Department of Labor is authority for the statement that for one hour's work the British worker can buy only 66 percent as much food as the American. The Frenchman and the West German works an hour for 35% as much food. Only the Australian comes close to the American, and even in Norway, Canada and Denmark the figure is in the middle 80's. In Sweden it is 69%, and in Russia the workmen must work all day to buy the food that the American takes care of in one hour.

If, in addition to educating your workmen as to their princely estate, you are in fact casting covetous eyes on a construction job in Great Britain, or in India, Brazil, France or several other countries, you will want to know exactly what workmen there are paid. You will want to know what materials cost, and you should have an idea of whether you, a foreigner, have any chance of getting the job or of getting out whole if you do get it.

Spurred by the realization that more and more U. S. engineers and contractors are raising their sights beyond our borders, ENGINEERING NEWS-RECORD asked its foreign correspondents in nine countries to round up the basic information. The results of this survey, reported here, are sobering to the extent that they reveal no welcoming committees awaiting a friendly American invasion. They do, however, give a first-time, factual and comparative picture of construction costs abroad. They give definite ideas on the available labor force and on its skill. And, as pointed out in the beginning, they raise into bold relief the relatively happy state of the American construction worker under an economic system based on private enterprise.

• **The wage rates** and the materials prices in nine countries and the U. S. are given in accompanying tables. The comments of our correspondents follow. While each report reflects special characteristics for the country to which it relates, the reader will recognize several conditions that run through all like threads of the same color:

Labor would not be familiar with mechanized construction practices.

Materials would generally be in short supply and expensive.

Local laws and labor regulations would place U. S. contractors at a disadvantage.

Best opportunities exist on large and complicated projects.

U. S. construction equipment is universally liked and wished for. Lack of dollars is a brake on purchases.

Japan

Construction labor, mostly unskilled, is plentiful, largely because very little construction other than housing is going on. There has been some talk of some new hydro projects, but very little else is proposed.

Materials are again in adequate supply after a period of hoarding by suppliers in hopes of high black-market profits. The present economic stabilization program, largely the result of U. S. insistence, has tightend up the money market, and many suppliers have been forced to sell in order to obtain cash for day-to-day business. American weights and measures are generally used except for lumber which is quoted in kokus or 10 cu ft units.

What construction there is is let to contractors. American contractors would be able to operate effectively under the U. S. occupation forces, but otherwise only if they loaned the Japanese the money to pay for the job.

A characteristic of the labor system in Japan is its control by "bosses" who supply the contractor with workmen. Frequently the "boss" is a sub rosa agent of the Japanese contractor; by paying the workmen less than the specified minimums for their work, he is able to "kick back" part of his earnings to the contractor.

Some U. S. construction equipment is in use in Japan on projects supervised by U. S. Army Engineers for utilization by occupation forces. None is used by local builders although they express interest in acquiring American machinery. Japan, however, will not have dollars for such purchases for some years. Even when dollars are available it is probable that only a few units will be bought to be used as models for designs to be manufactured by local machinery manufacturers. This was the pattern prewar, and there has been no change in the Japanese ideas of such practices.

Australia

Construction labor is crucially short, as is labor for production of construction materials. Some relief has been provided by the Department of Immigration, which has brought many DP's from Europe on condition that they work for two years on construction jobs and in supply industries.

All construction materials are in short supply. Structural steel, cement

and roofing tiles are high on the import list.

The larger authorities prefer to have all jobs except building construction and structural steel fabrication executed by day labor. Private awards, however, have tended to increase because contractors have a regular labor force at their disposal. Contractors, too, have been favored for tunneling and excavation jobs. Municipal and country road work is often let to private contractors.

More work is planned for the immediate future, but budgeted appropriations are likely to be in excess of the country's physical capacity, as they have been in most recent years.

One big job actually under way, after many years of discussion, is the Snowy River hydro electric project. Immediate objective is the construction of two power stations totaling 400,000 kw and the provision of 600,000 ac ft of irrigation water. Involved is a dam and two tunnels. This present work is estimated to require 8 years and the expenditure of over $100 million. The ultimate program includes 7 major dams and 20 power plants to generate 1,750,000 kw. It is a 25-year project and conceded to be in the dream stage at the present time.

The aid of U. S. contractors is eagerly sought on major projects, but the treasury authorities have so far not consented to the letting of contracts because of the dollar liabilities involved.

U. S. construction equipment, mostly war surplus, predominates on all types of jobs. The new machines are built in Australia by U. S. companies or made by Australian licensees.

India

Simple lift-and-carry coolie labor can be had easily, and skilled labor is in moderate supply. There are no official wage rates, those quoted for Bombay in the accompanying table being simply the going charges.

Steel and cement are scarce and strictly rationed, but can be bought in the black market. Brick and timber are not in quite such bad supply, but are costly and difficult to obtain in big quantities. Lumber, as a matter of fact, is almost prohibitive in cost as the table shows. Teak is the only good timber available and, as the table shows, is more than five times as expensive as $90-U. S. pine. As a consequence teak is used only for millwork; all actual building construction is of masonry of some sort. In the north of India there is a short-leaf, coarse grain scrub pine that is sometimes used, but it, too, costs in the neighborhood of $200 a thousand board ft.

All sizeable private jobs are let to contractors because they, alone, have access to the labor supply. All public jobs, on the other hand, are run by the Public Works Department which may or may not sub-contract some parts. India has very few big contracting firms.

More work than heretofore is planned for the immediate future in India, but by no means all of it will be carried out. India's pipe dreams are infinitely beyond her pocketbook.

Only if some really big concrete dam should come along will there be an opportunity for an American firm. At present there is not much in sight that the local contractors cannot handle.

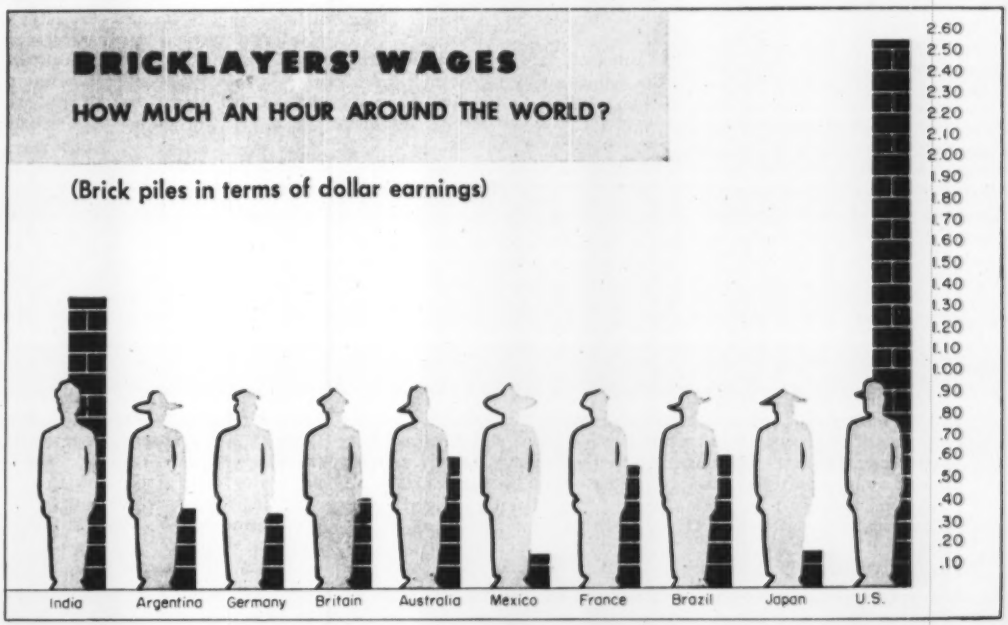
Should an American contractor land an Indian job, he would be faced with shortages of everything except red tape. Mechanical construction practices would also be difficult to establish. It is still cheaper to hire a coolie by the day to do what he can, than to attempt to supply him with wheelbarrows. He would rather carry the dirt on his head in a basket.

Mexico

Construction labor is plentiful in both skilled and unskilled classifications, and materials are in adequate supply almost without exception.

All types of construction are let to contractors, although it is not unusual for the government to do force account work. Most of the Pan-American highway in the south is in the hands of contractors, while the federal department of public works has undertaken road work itself in the north. Airport work is being done directly by the government, but several big dam projects have been let to private contractors.

Most publicized operation at the present time is the $200 million six-year Papaloapan irrigation program



CONSTRUCTION WAGES AROUND THE WORLD

(In U. S. dollars per hour)

	India Bombay	Argentina Buenos Aires	Germany Frankfurt	Britain London	Australia Melbourne	Mexico Mexico City	France Paris	Brazil Rio de Janeiro	Japan Tokyo	U. S. Aver. of 20 Cities
Laborers, bldgs.	$0.52	$0.30	$0.29	$0.34	$0.49	$0.07	$0.29	$0.25	$0.09	$1.47
Laborers, hvy. constr.	0.52	0.31	0.32	0.34	0.49	0.09	0.34	0.31	0.11	1.49
Carpenters	1.36	0.37	0.34	0.41	0.60	0.14	0.64	0.56	0.16	2.18
Bricklayers	1.36	0.37	0.34	0.41	0.60	0.14	0.55	0.60	0.16	2.55
Iron workers	1.36	0.37	0.34	0.38	0.52	0.17	0.43	0.62	0.17	2.32

which includes the largest dam in Latin-America. Alvaro Obregon dam on the Yaqui river and Morelos dam on the Colorado river are also under way. Construction is also started on the trans-isthmus highway from the Pacific to the Atlantic in Tehuantepec. Work on highways, with the aid of some $32 million of loans from the Export-Import Bank, will continue at the present rate. The building boom in Mexico City has slowed down.

Only in the border area have U. S. contractors played much of a part in the Mexican construction picture of the last few years. Elsewhere, Mexican contractors, through closer bidding, political connections and other means, have secured most of the work. There are exceptions for complicated refineries or factories with unusual processing systems. No law prohibits U. S. contractors from bidding.

U. S. contractors encounter their main difficulty with labor laws and unions. Their profits, however, can easily be taken out of the country. U. S. construction equipment is used almost exclusively.

Brazil

Construction labor is plentiful. Most firms pay above the fixed minimum wages, and workers generally do not demand extras.

Of construction materials, only cement is short. It is being imported in great quantities and is given preferential treatment by the import control authorities.

Except for very small jobs, all types of construction are let to contractors.

Brazil has a sizeable amount of highway, bridge and dam construction under way, and more is projected. There is great interest in the federal proposal to link north and south Brazil by at least one good highway and to push into the west. Building of apartment houses and office buildings in Rio and Sao Paulo has slackened. Dredging and construction of port works are at a rather slow rate.

Reinforced concrete is practically the only type of construction used in large buildings. Brazil has never built steel buildings, with but an occasional exception. High cement prices, however, have caused engineers to look into the possibility recently. There is no indication yet that anything will come of this, and general thinking is that steel buildings in Brazil must await the production of Brazilian steel.

A few U. S. contractors have gone to Brazil, notably Morrison-Knudsen on the power development for Rio and Sao Paulo and the rebuilding of the Vitoria-Minas Railway. By and large, however, Brazilian firms are equipped to handle the possible jobs.

U. S. contractors working in Brazil will encounter the usual governmental red tape and general Brazilian slowness. They would also face the probable necessity of setting up a Brazilian company under Brazilian law. There is a limitation on remittances of dividends and profits, and a limitation on the repatriation of invested foreign capital to 20 percent per year should the company be liquidated.

U. S. construction equipment is widely used, and there is still a large demand for earthmoving machinery, trucks, dredges and tractors. Dollar shortages limit the purchases.

Unions in Brazil are organized from the top down as in the old Italian Fascist system. Government plays an important role in setting up and supervising them. The employers also are organized into syndicates to deal with the unions. Disputes are taken to labor courts whose decisions are final. As a result, there are few strikes, but employers sometimes find themselves saddled with blanket raises. Since the cost of living is still going up, the courts are apt to favor the unions.

Argentina

Common labor is moderately plentiful. Skilled labor and technical men are in short supply, mainly because the government has drained them off the manpower pool for federal projects. Extras beyond base pay are seldom asked except for jobs far from population centers. On the other hand, management must figure its labor costs about 65 percent above base scale to take care of social services, insurance and other charges liable to be levied by decree. Some firms, taking a realistic view of the present Peron policy of making all raises retroactive, set aside an additional ten percent over current scales as a reserve against that possibility.

Getting materials is a constant fight for everything—sand, stone, steel, bricks or concrete.

The only projects getting a play in the news today are those directly connected with Peron's five-year plan, or with political-propaganda angles—the workers' settlements christened "Barrio Juan Peron," or "Ciudad Evita."

Little new work is in progress and less looms for the near future. Business and industry take the position that until they are assured a source of material to keep present plants in production or until the labor situation stabilizes, any expansion would be foolhardy. American and foreign firms add that unless the government reverses its prohibition against remittance of profits, any new building for them is out of the question.

Opportunities for new contractors of whatever nationality are so slender as to be invisible. Now and then some U. S. contractor appears with the thought that official contacts may get him a job, but so far nothing has happened.

Some U. S. construction equipment is in use, and more is wanted by builders in all lines. Prospects are not good, however, until the government relaxes present absolute restrictions on imports, loop-holed only for an occasional federal project.

Germany

Competition for construction workers, particularly skilled, is extremely keen under present circumstances in Germany. Many contractors pay more than the minimum or offer special piece rates to attract good labor.

There is not much difference between common and skilled labor rates, as far as the basic legal minimum is concerned. This results from the policy of making recruit wages in the construction industry sufficiently at-

WORLD PRICES OF BASIC CONSTRUCTION MATERIALS

(Converted to U. S. dollars and weights and measures)

	India Bombay	Argentina Buenos Aires	Germany Frankfurt	Britain London	Australia Melbourne	Mexico Mexico City	France Paris	Brazil Rio de Janeiro	Japan Tokyo	U. S. Aver. of 20 Cities
Struct. steel/ton	$84.00	$133.00	$77.00	$57.00	$54.00	$121.00	$95.00	$205.00	$41.00	$65.00
Reinf. steel, 3/4"–1"/ton	80.00	150.00	80.00	55.00	49.00	128.00	53.00	190.00	34.00	67.00
Portland cement/bbl	3.95	3.23	2.37	1.64	2.63	2.50	1.50	9.40	3.79	2.95
Lumber, equiv. to:										
1st class pine/Mbf	525.00	98.00	90.00	116.00	145.00	81.00	42.00	152.00	30.00	90.00
2nd class pine/Mbf	350.00	81.00	79.00	106.00	54.00	46.00	31.00	138.00	25.00	.....

tractive to build up the labor force.

Most workers are paid more than the minimum because (1) German contractors, conscious of the lucrative and long-term building activity ahead, want to hold on to their best workers; and (2) competition for getting reconstruction projects under way is keen, particularly from commercial organizations eager to get buildings repaired to take advantage of the general upswing in business in western Germany. The normal work week is 48 hours, spread over 5½ days. Overtime extras are 25 percent for daytime work, 35% at night, 50 percent on Sundays and 100 percent on holidays.

The Germans have a comprehensive system of extra pay for various conditions of work which is part and parcel of their minimum wage scale. For example, working around sewage brings 6 cents extra per hour. A detailed and graduated scale takes care of working at heights and under innumerable other conditions with an element of danger.

So far construction in Germany consists of building repair, using reclaimed brick and rubble from bombed areas. There is thus no serious shortage of building materials.

No American construction equipment has been imported under ERP as yet. A half million dollar provisional allocation is included in the current ERP budget. Using part of this amount to import tractors and excavation equipment for rubble clearance has been discussed, but no definite conclusion reached. One difficulty is that many German firms can't raise the marks necessary to pay for ERP equipment.

German manufacturers of construction machinery and equipment are getting on their feet along with the rest of industry, and presumably will take care of most general reconstruction requirements.

The Germans do not seem to expect U. S. construction firms and contractors to participate actively in their reconstruction efforts. They are, however, in need of U. S. and other national know-how, particularly in connection with their housing problem which overshadows all others.

Housing is a political issue of such deep consequence that unless considerable progress is made in the coming year, the present government conceivably could fall on that score alone. The man on the street complains bitterly of the fact that theatres, cafes and stores are springing up like weeds, while few homes and schools are being built.

France

Construction labor has been plentiful for over a year now. There has even been some unemployment in the last few months. Official wage rates generally are observed, except where local temporary shortages occur.

All construction materials were freed from rationing in 1947 and have remained in liberal supply ever since. Toward the middle of 1949 surpluses developed in many key materials large enough to force prices from 15 to 30 percent below official ceilings.

All major construction jobs in France are let to contractors.

Construction is scheduled to maintain about the same rhythm in 1950 as in 1949, when 92,000 housing units were completed. This is about half the rate originally planned. Lack of money is the hitch.

The 1½ million housing units originally programmed for completion in 1955 can't be finished before 1960. The total cost is in the neighborhood of 4,000 billion francs, and only about 240 billion francs has been spent in each of the past two years. Unrealistic rent control laws are holding private housing construction down to almost practically nothing.

It is the same story on public works. No major highway projects will be initiated this year, and there will be no increase in funds for road maintenance. The bridge building program will continue at about the same pace as last year when 1,200 bridges were built. About half of the 7500 bridges destroyed during the war have been replaced. Nearly 50 hydro projects are underway in the south of France.

Opportunities for U. S. contractors are negligible since there is a surplus of capable French contractors. It is doubtful whether U. S. contractors could compete pricewise with local men anyway in view of the extra costs they would have. The French building industry is highly organized and would fight bitterly any serious foreign competition.

A few million dollars worth of U. S. construction equipment has been imported under the Marshall Plan. There would be a continuing demand for this equipment if it weren't for the persistent dollar shortage. Actually construction machinery is one of the things the French plan to manufacture in order to hold down imports.

Britain

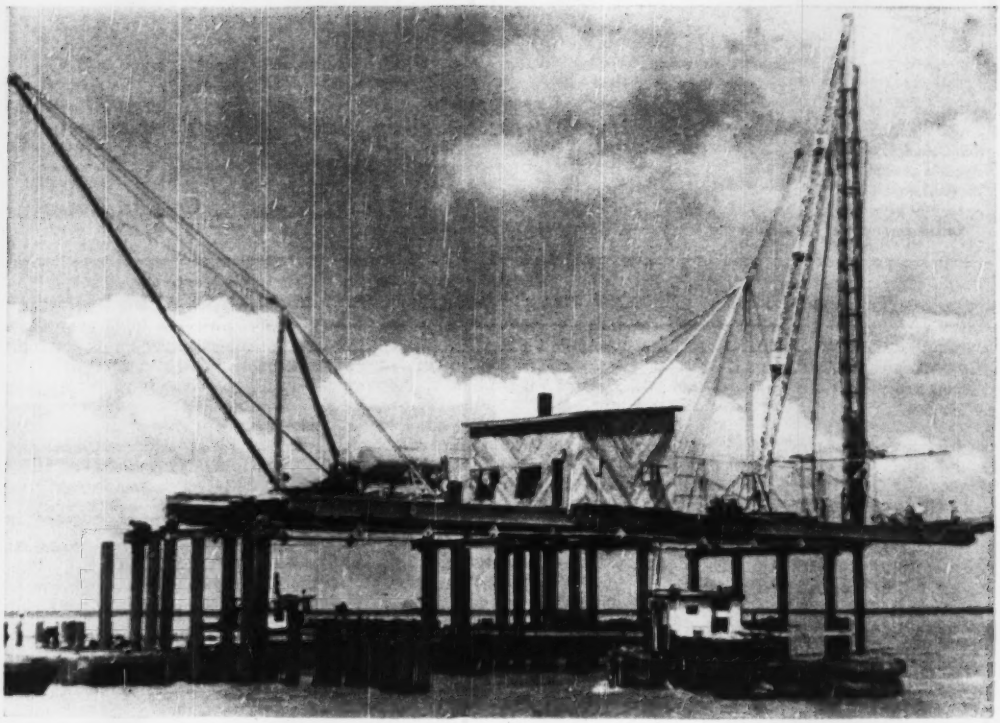
Labor is plentiful as a rule, and it is seldom necessary to pay extras over official wage rates. Material supplies fluctuate, but generally tend to be short. Nearly all types of construction are let to contractors, work being carried out by day labor only when it is of a nature that makes it impossible for a contractor to make a reasonable estimate of cost.

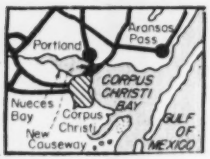
The principal large projects being talked about are power stations and a London concert hall.

Under present conditions there are virtually no opportunities for American contractors, who would, anyway, encounter very elaborate systems of controls and restrictions.

In general all construction work in England is carried out under Ministry of Works' licenses issued on the basis of statistics showing the amount of labor and material available from time to time. The labor situation is upset because there is obviously a certain amount of black market work (unlicensed) being carried out privately.

Labor on the whole, while working to the rules of the Trade Union, will respond quite well if given good leadership, in the opinion of one of the country's largest contractors, Sir Robert McAlpine & Sons Ltd.





PILE DRIVING TRAVELER, 165 ft long and resting on piles already driven, builds two-mile causeway at Corpus Christi, Tex., on . . .

Concrete-Filled Steel-Tube Bents

Fagan B. Mason
Senior Resident Engineer
Texas Highway Department
Corpus Christi, Texas

SLENDER, fluted steel-shell piles support the new 9,636-ft Nueces Bay Causeway at Corpus Christi, Tex. Up to 120 ft long, the shells are driven in four-pile bents on 50-ft centers, then filled with concrete. A piledriving traveler 165 ft long sinks the piles. It rests on three driven bents and cantilevers 50 ft ahead to drive the next.

Nueces Bay is a shallow arm of Corpus Christi Bay. The new structure across it will replace an outmoded narrow timber causeway now carrying 5,000 vehicles per day. It will be a main route north out of Corpus Christi, linking that city with Portland on U.S. Highway 181.

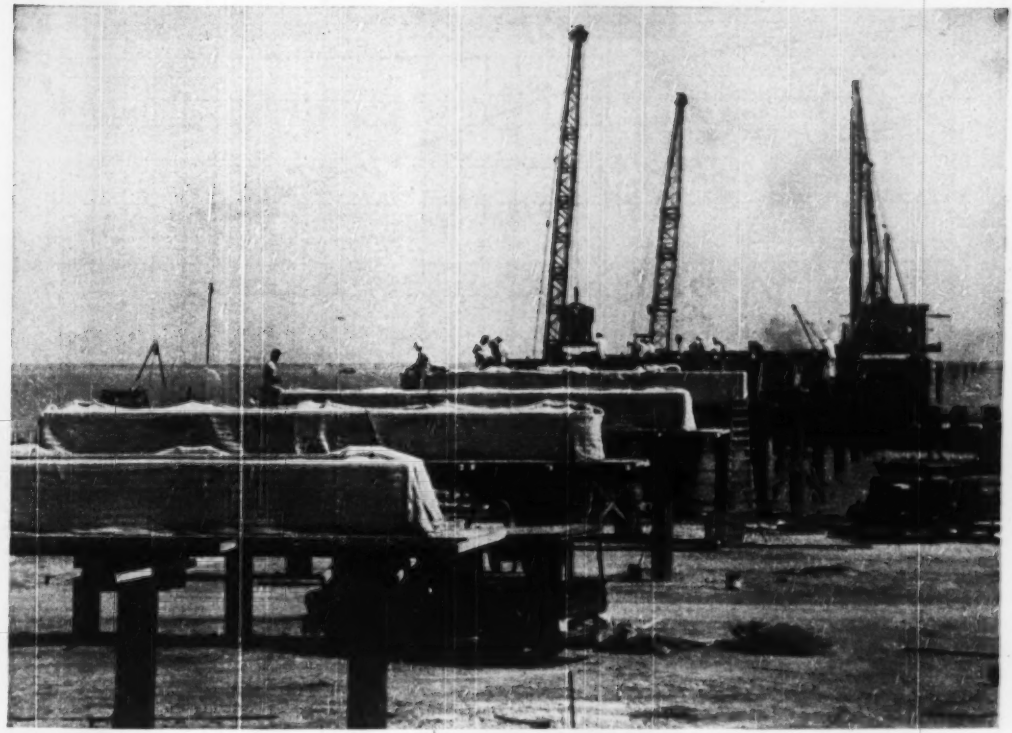
The causeway superstructure, approached at both ends by hydraulic fills 5 to 8 ft above mean low water, is made up of a series of units 225 ft long, consisting of four continuous 50-ft spans and a 25-ft simple span. The latter are designed to collapse and prevent progressive wrecking should barges or other floating objects crash into the structure. Four beams wide and welded, the spans are supported on bents of four 18-in. piles spaced at 9-ft centers. The deck will be reinforced concrete carrying a 28-ft clear roadway, 18-in. wide curbs and luminated pipe railings.

The Texas Highway Department's ultimate plan calls for two identical parallel causeways giving four lanes of divided traffic. The first structure is now under contract, and its completion is forecast for early 1951.

• **Pile shell selection**—Several factors influenced the selection of the vertically fluted steel shell piling for the substructure:

(1) Extreme difficulty was anticipated in operating barges and other marine equipment in the shallow bay waters. Throughout most of the causeway area, bottom lies only 1 to 2 ft below mean low water (high water is only 2 ft deeper) so the comparatively lightweight shells were attractive for economical handling.

(2) Because the Corpus Christi section of the Gulf coast is frequented by tropical storms, the causeway roadway was placed 24 ft above water. This design feature was splendid as a precaution against wave action. But it placed a considerable length of slender piling above water where it would be exposed to battering by floating objects during storms. Thus, it was important that the piles have considerable resilience to take thrust and rebound without permanent injury.



CLOSE BEHIND DRIVER, the steel pile shells are filled with concrete (reinforced in its upper 30 ft) and the bents are capped with reinforced concrete cured beneath quilted blankets.

(3) The foundation soil consists chiefly of alternate layers of oyster reefs and fine packed sand. Uncertain depth of a satisfactory bearing stratum, and variations in the penetration necessary, made desirable a pile that could be quickly cut off or built up.

Piles range from 70 to 120 ft in length. The steel shells are delivered to the job in suitable length sections, then fabricated into completed piling. They are 18 in. in diameter, with the bottom 40 ft tapered to an 8-in. tip. The top 30 ft of pile shell is alloy steel (Cor-ten) with high tensile strength and somewhat more corrosion resistance than the mild steel that constitutes the rest of the pile. The alloy section is fabricated from No. 3 gage sheets; the mild steel section from No. 7. Specifications call for the alloy to extend at least 4 ft below low tide

• Shallows complicate piledriving— The contractor was faced with the problem of driving 920 piles, averaging 100 ft in length, in an area where use of large marine equipment was impossible because of low water and narrow approaches. He, therefore, had to go overhead with his operations despite the fact that a rig that could cantilever 50 ft ahead to drive successive bents would be required. The solution was a huge traveler that rests on three completed bents while driving the next.

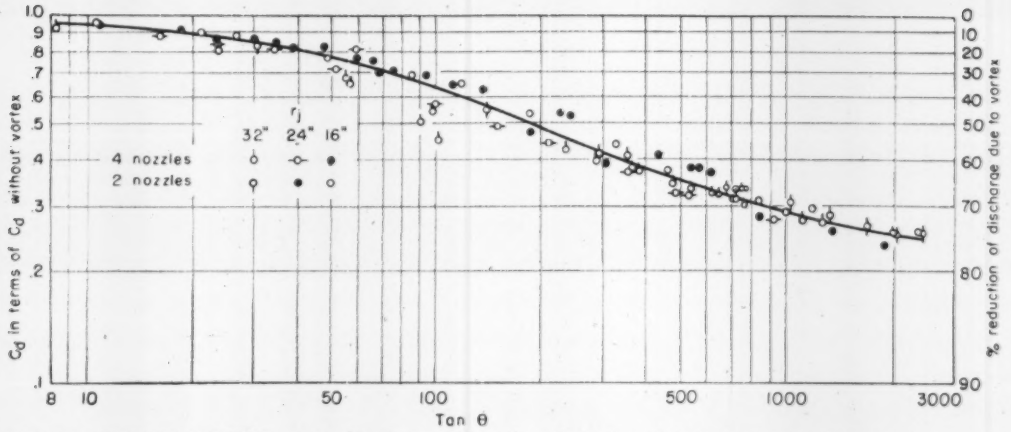
The rig is 165 ft long; weighs 150 tons fully equipped. It handles a double-acting steam hammer (15,000 ft lb of energy at 120 blows per min) in 90-ft leads. The leads slide on a transverse beam at the front of the driver, in order to cover an entire bent.

The gunwales of the machine ride on rollers attached to temporary I-beam caps on the piles. A hoist on the rear of the traveler picks up the movable cap over which the rig has just passed and loads it on a tram which carries it forward where another boom places it on the bent last driven. Then the rig winches itself forward to drive the next row of piling.

With this traveler, the contractor has maintained a driving production of 12 to 16 of the long piles per 8 hr day. After the metal shells are in place they are concrete filled, with the top 30 ft reinforced by the usual type of concrete pile reinforcing.

Required pile bearing is 46½ tons. This has been easily obtained, principally through skin friction, at minus 70- to 80-ft elevations. Three piles were test-loaded, using one 200-ton hydraulic jack and a beam tied down to adjacent piles. All the piles so tested withstood a load of 160 tons without failure; one reached 187 tons, which was the limit of calibration on the jack.

Austin Bridge Co., Dallas, is building the causeway, including bascule span and fender system, for $2,457,000. Jack Turquette is job superintendent; Shannon E. Miller is engineer. Under a separate contract, Brown & Root, Inc., Houston, are putting in the approach fills for $351,220. The writer is in direct charge of the construction for the Texas Highway department, assisted by M. G. Yoes. Union Metal Manufacturing Co., Canton, Ohio, furnishes the pile shells for the work.



ORIFICE DISCHARGE DROPS, as strength of vortex above the orifice—measured in terms of tan θ—increases.

How the Vortex Affects Orifice Discharge

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TO WHAT EXTENT does the vortex affect discharge through an outlet? Will it, once started, grow to serious proportions? These uncertainties often cause designers of vertical shaft spillways and other outlets to call for expensive structures to eliminate the vortex and insure radial flow.

Studies recently completed at the State University of Iowa shed new light on those fundamental questions which have kept designers from designing for—instead of against—the vortex.

A 6-ft dia. cylindrical tank with a 4-in. sharp-edged, circular orifice at the center of its bottom was set up with provision for making the inflow radial, tangential or any combination of the two.

It was found that when inflow has a tangential component, a stable vortex forms which has a definite effect on discharge. If the tangential component of inflow is shut off after the vortex has become stable, it will soon die out. With purely radial inflow the vortex is small and transitory; its effect on discharge is negligible.

The tank used in all tests had a false bottom, below which radial flow Q_r was guided in through a baffle and radial vanes. Tangential flow Q_t was directed into the tank immediately above the false bottom through four 1-in. pipes. These branched from a 3-in.-dia. pipe above the tank, extending out, then down, to the outer edge of the tank's false bottom to follow its periphery for 30 in. They could be swung about their vertical legs to vary the distance of tangential inflow jets from the orifice.

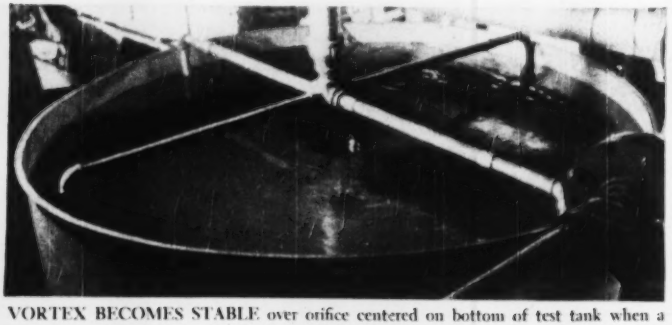
Three piezometer connections, made 13 in. from the orifice center, were connected by tube to a stilling well where water surface elevation was measured by a hook gage. Experiments were done under constant head—1.63 ft. Variables were the tangential and radial discharge, the number of nozzles, and radius of the nozzle jet circle, r_j, from center of orifice.

Six sets of runs were done for different combinations of nozzles, 2 or 4, and the distances r_j, 16 in., 24 in. or 32 in. In each set the tangential and the radial flow were varied. From total inflow and head the coefficients of discharge C_d were computed.

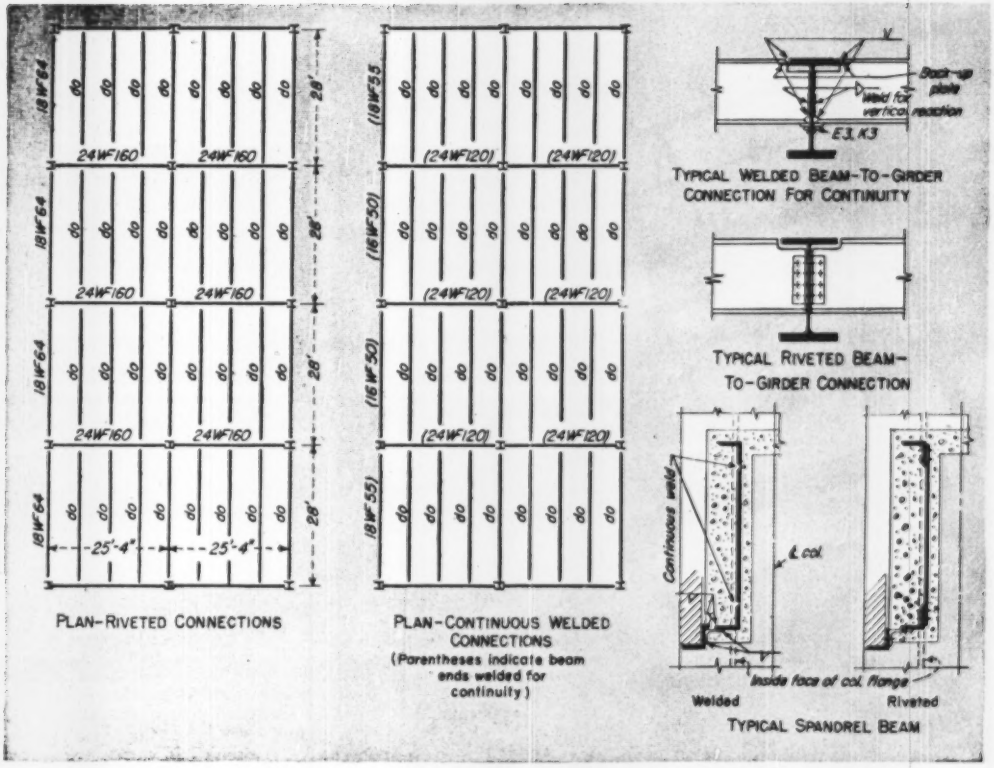
It was found that (regardless of the number of nozzles or their distance from the center) the size of the stable vortex that forms depends upon the ratio of the average tangential component of velocity to the average radial component of velocity. This ratio equals the tangent of θ, the angle that the resultant velocity makes with the radial. And tan θ is constant for any radial distance from the center of orifice, if no appreciable tangential force or momentum is introduced.

The relationship between tan θ and the reduction in the coefficient of discharge is shown by the curve below. This relationship can be used to estimate the economy of using radial guide vanes to eliminate the vortex. Also, where the vortex is used to decrease orifice discharge, its effect can be estimated from the results plotted above.

The tests described were made at the Iowa Institute of Hydraulic Research as a part of the graduate training program of the department of mechanics and hydraulics. Prof. Hunter Rouse is institute director and Prof. J. W. Howe is department head.



VORTEX BECOMES STABLE over orifice centered on bottom of test tank when a portion or all of the inflow is tangential. Vortex strength varies as the tangent of the angle between the approach velocity resultant and the radial direction.



Riveted framing was changed to welded when cost comparisons showed that . . .

Welded Building Frame Saved Money

Does all-welded construction of a building frame save money over a comparable riveted design?

It's difficult to make a categorical reply to that question: The factors involved are complex and vary with time and place. But opportunities for making comparison do arise. In one such case, the engineer found a saving of more than $68,000 for a welded building frame over the riveted design. Despite the higher unit cost of welding, the total cost of the frame was less because of the smaller tonnage of steel required.

Van Rensselaer P. Saxe, consulting engineer, of Baltimore, Md., is the engineer. The building is a new publishing plant for the Baltimore Sun and Evening Sun. The new structure is T-shaped, the north wing being 126x152 ft and the south wing 190x 106 ft. It contains 20,600 sq ft of floor area in its five stories, but two floors (for publishing purposes) will be added on the north end and five floors (for offices) will be added on the south end. Foundations rest on concrete piles, which were driven to disintegrated rock through an old fill in what was originally a river bottom.

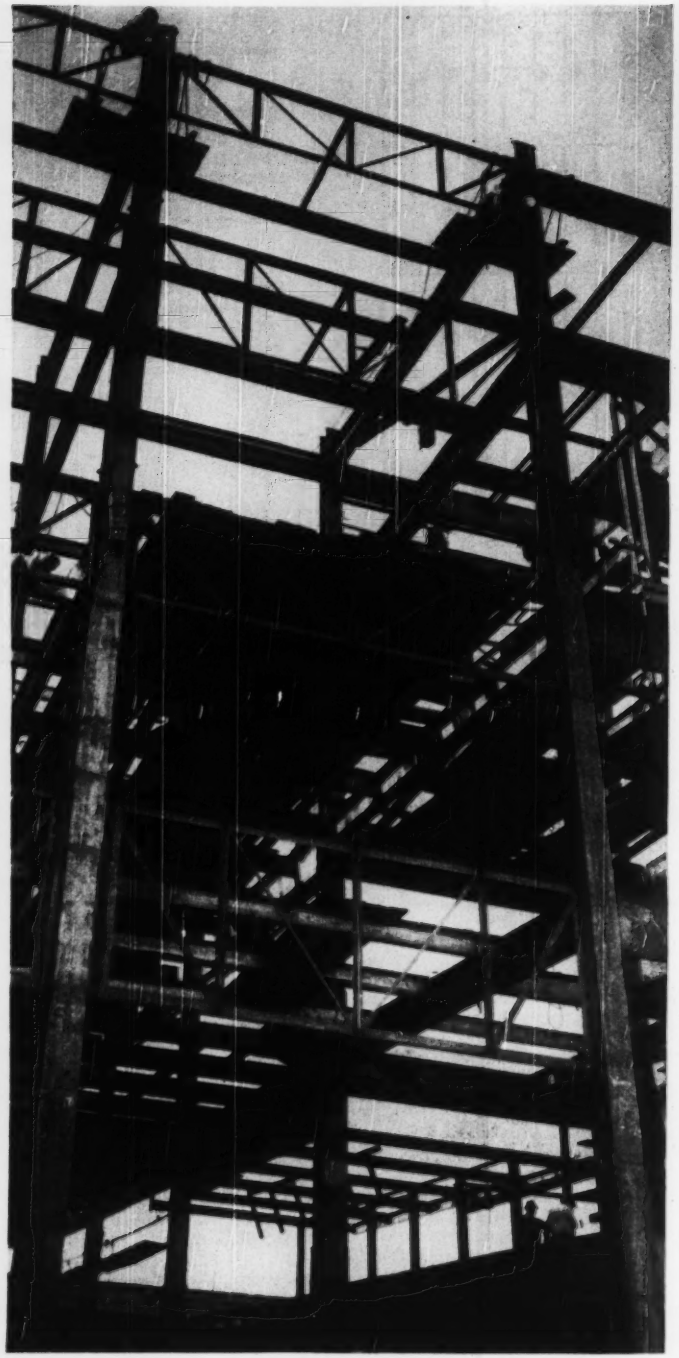
The south wing, being rather narrow, required wind bracing, since it carries high cooling towers for air conditioning the entire building. These towers are above the roof but inside exterior brick walls. Wind bracing was not required for the north wing.

• Bids taken for riveting—Mr. Saxe and his staff designed the building initially as a riveted structure, with concrete floor slabs and beam fireproofing.

"Original studies," Mr. Saxe comments, "indicated that considerable steel tonnage could be saved through the use of a welded design. These preliminary studies were abandoned because the large tonnage of steel required could be supplied only by a few fabricators (in 1947, when steel was hard to secure). We assumed that none of these fabricators would care to bid on a welded job."

Bidders were asked to submit for the riveted design a price per ton of steel erected, subject to escalator clauses. One bidder suggested as an alternative a cost-plus-fee basis as a more satisfactory method of absorbing increasing costs and insuring earlier delivery of steel. This company agreed to weld the frame, if welding saved steel. After consultations, the engineers asked these fabricators to estimate the cost of a welded, continuous frame based on the preliminary information developed by Mr. Saxe.

• Welding recommended—The estimate submitted showed that steel for the welded building cost several dollars per ton more than for the riveted. Mr. Saxe believed, however, that the tonnage that could be saved by welding would more than offset the estimated



SPANDRELS were designed as trusses because of the large distance between window head and floor slabs above. Trusses were fabricated without gusset plates.

COLUMNS were spliced with butt welds; then erection bolts were removed.

difference in unit prices. In addition, he contended, a welded continuous structure offered shallower beams, requiring less fireproofing; savings in dead weight; smaller story heights; corrosion-proof connections; and little or no noise during erection. The engineers, therefore, recommended that the building be designed with a welded, continuous frame.

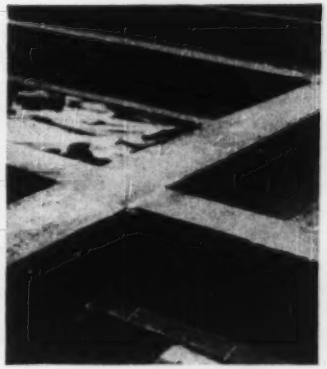
Mr. Saxe points out that, for the most efficient continuous design, beams should be chosen for positive moments, and short plates should be welded to top and bottom flanges at beam ends to provide for negative moments, which exceed the midspan positive moments. This type of construction requires considerable added shop work. The fabricator, therefore, decided it would be less expensive to select beam sizes to meet negative-moment requirements and eliminate the plates.

Mr. Saxe comments that when more welding is used, fabricators may be better set up to do this work and thus take full advantage of continuity. Even greater economy may then be shown for welding than was developed in this building.

• **Final cost showed savings**—"On completion of the welded design," he reports, "our estimates showed we had made a saving of 332 tons in beams, connections and rivets. Our decision was vindicated. From this point on, we had to wait for the final bills for the finished structure to see how the owner had fared on the cost-plus-fee contract: The price of steel had advanced more than $17 per ton, shop wages 22 percent and field wages 33 percent. Freight rates also rose. And the job was delayed four weeks when iron workers and hoisting engineers went on strike.

"On receipt of bills covering the

HOLES in column covers above the beam are for plug welds to transmit tension.



BEAMS are connected to girders by butt welds at the flanges.

completed work, we found that considerably more money had been saved by the welded design than could have been anticipated at the time the estimates were made."

Here's how the final figures compared:

Estimated cost of low bidder for riveted structure (2,551 tons at $216.23 per ton)	$551,508
Cost of welded frame (2,214 tons at $218.10 per ton)	482,986
Actual saving	$68,522

The saving developed was due generally to reduction of steel tonnage, since drawings, shopwork and fieldwork were about the same as for a riveted job. A sizable amount of money was also saved on concrete and formwork and on decreased building height, because continuity permitted use of shallower beams.

• **Design features**—Mr. Saxe also points to some interesting sidelights:

The unusually large story heights required brought with them the problem of wall supports over continuous window openings. The heads of the windows are from 3 to 5 ft below floor level. Thus, two wall beams apparently were needed—a lintel to support the wall directly over the windows and a spandrel to carry the floor and apron walls.

With the riveted design, it appeared more economical to use deep plate girders entirely encased in concrete. A light truss was to be used for the spandrels that were deeper than four feet.

When the design was changed to welding, these spandrels were used, but the webs of the plate girders were made shallower, and the legs of the angles were butt welded to them. Gusset plates were omitted from the light trusses. The switch to welding thus saved steel and cut fabrication costs for these members. If they had been designed as continuous beams, even more money could have been saved.

The greatest tonnage and cost reduction showed up in the floor construction—not only in the beams and girders but also in connections. The connection units used were those patented by Mr. Saxe and made by J. H. Williams & Co.

These units made erection bolts unnecessary except for the columns. Column splices were made by butt welds between column flanges. Until welded, the columns were bolted through temporary plates welded to the inside of their flanges. The bolts were removed as soon as the butt welds were made.

• **Welding techniques**—Beam and girder flanges were prepared for butt welding by flame-cut beveling. The top flange was cut from the top downward and the bottom flange from the upper side downward. A small piece was cut out of the bottom of the web to permit the butt weld to pass by the flange.

After the beams had been erected, welding operators, when necessary, tacked a small piece of 1x1¼-in. plate back of the beveled edges to back up the butt welds. Due to the way the beveled cuts were made, all welding could be applied down-hand. Although a large amount of weld rod was used (4.9 tons in the field and 4.2 tons in the shop), surprisingly good time was made by the welding operators.

In making butt welds, operators made the first pass at the narrow edge of the butt with a small rod (⅛ in.) to secure good penetration. Other passes were made with larger rod (⅛ in.). Shear load welds were applied directly on each side of the beam web to its supporting member, usually with ⅛ in. rod.

A satisfactory clearance for this method of erection, requiring a minimum of weld material, was found to be ¼ in. Ends of all beams were milled to prevent under- or over-running.

Cover plates welded to column flanges created a problem where beams had to be connected to them. Tensile forces due to the negative moment were quite high and could separate cover plate from the flange. This condition was overcome by attaching the cover plate to the column flange with large plug welds, which were of sufficient size to carry the tensile forces directly into the column flange.

Welding also simplified the cantilever construction adopted for a corner of the building where windows prevented use of wall columns. Floor beams cantilevered from girders about 8 ft back of the wall line supported spandrels and floors in this area.

• **How to keep costs down**—Having experienced the same relative economy in three more recent buildings, Mr. Saxe offers this advice to designers:

1. You can save money by using a set of standard details for all similar connections, even if, at times, less weld material could be used for some individual connections.

2. You can also save money by specifying columns of the same nominal depth from base plate to roof. This will enable you to design simple splices and similar beam connections.

3. Wall columns should be set with webs perpendicular to the wall. This will enable spandrel beams to be easily connected to the inside of the exterior flange. The spandrels will have a constant center-line dimension, thus simplifying details and field welding.

4. You can secure complete freedom from over-run or under-run of column sizes by turning the columns so that beams or girders parallel to the long direction of the building are connected to column webs.

5. By the simple expedient of using parentheses, you can indicate on design drawings the degree of continuity required for beams: For full continuity requiring butt welds at each end (18 WF 50); for semi-continuous 18 WF 50), with the parenthesis shown at the end to be butt welded. For beams not requiring continuity, you need merely give the beam size without parentheses. You can indicate shear web welds in a schedule of beam sizes.

Palmer, Fisher, Williams & Nes were achitects for The Sun Building. George A. Fuller Co. was the general contractor, and American Bridge Co. fabricated and erected the steel.

WHAT ARE WICKETS?

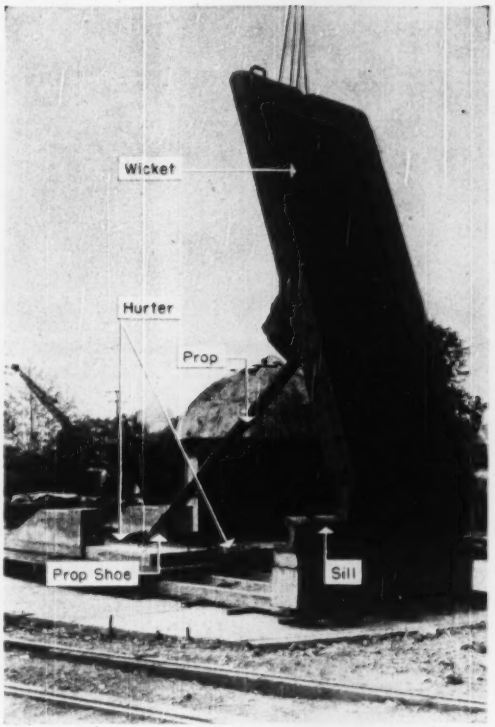
Wickets are panels of movable navigation dams. The wickets on the Ohio River are of the Chanoine-Pascaud type, named for engineers who developed them in France.

Their first use in the United States was in 1885, when the Corps of Engineers put into service Dam 1 on the Ohio at Davis Island, 417 miles below Pittsburgh. Dams 2 to 5 followed around the turn of the century, (when each dam-and-lock combination averaged under $1,000,000 to build.) Dams 6 to 53 were constructed 1910-1929. Dam 52 at Brookport, Ill., is the world's longest Chanoine-wicket dam with 312 wickets in the 1,248-ft long navigable pass and 135 in the 540-ft weir section.

There are 46 navigation dams on the Ohio now—all except four with Chanoine-Pascaud wickets. Raised during low water, they form 46 steps rising 424 ft from Cairo, Ill., to Pittsburgh —981 miles. Tows of river traffic navigate in 9 ft of slack water between dams and through 110-ft x 600-ft locks at the dams. Lowered during high water, wickets lay flat at the river bottom, offering no obstruction to navigation, which proceeds directly over them.

Improvement of the Ohio for navigation began in 1824, when river traffic was assured a minimum 3-ft depth—without benefit of dams. In 1875 a 6-ft depth was adopted, and Congress approved the first 13 movable dams. And in 1908 the present 9-ft minimum was set for the entire river.

Now the Ohio is to be deepened again (ENR Dec. 1, 1949 p. 17). Dams in place have out lived their useful service are too small for the proposed 12-ft channel. Bigger and better wickets are being tested.



NORMAL DAMMING POSITION of improved wicket is at 20 deg. from vertical with prop shoe in forward hurter seat.

Improved Metal Wickets For a Deeper Ohio River

NEW STEEL WICKETS have been developed by the Louisville District, Corps of Engineers, in its studies for deepening the Ohio River channel from 9 to 12 ft.

These improved wickets, now being tested at Dam 43 near Louisville, are of the Chanoine-Pascaud type, but have several advantages over the old timber structures still in use:

They are 6 ft wide and over 18 ft long; the old ones measure 3 ft 9 in. by 17 ft. Instead of the usual 3-in. spaces between wickets—to be closed by wooden needles at low flow—the new ones fit fairly closely together and have side seals that permit little leakage. And, in addition to the single 20-deg-from-vertical position of the old style, the new wickets have a second position at 32 deg to allow discharge through the wicket portion of the dam.

The new two-position wickets are designed for a 9-ft difference in head between upper and lower pools, and can be raised against full head. Being larger, they permit faster operation—fewer of them are needed.

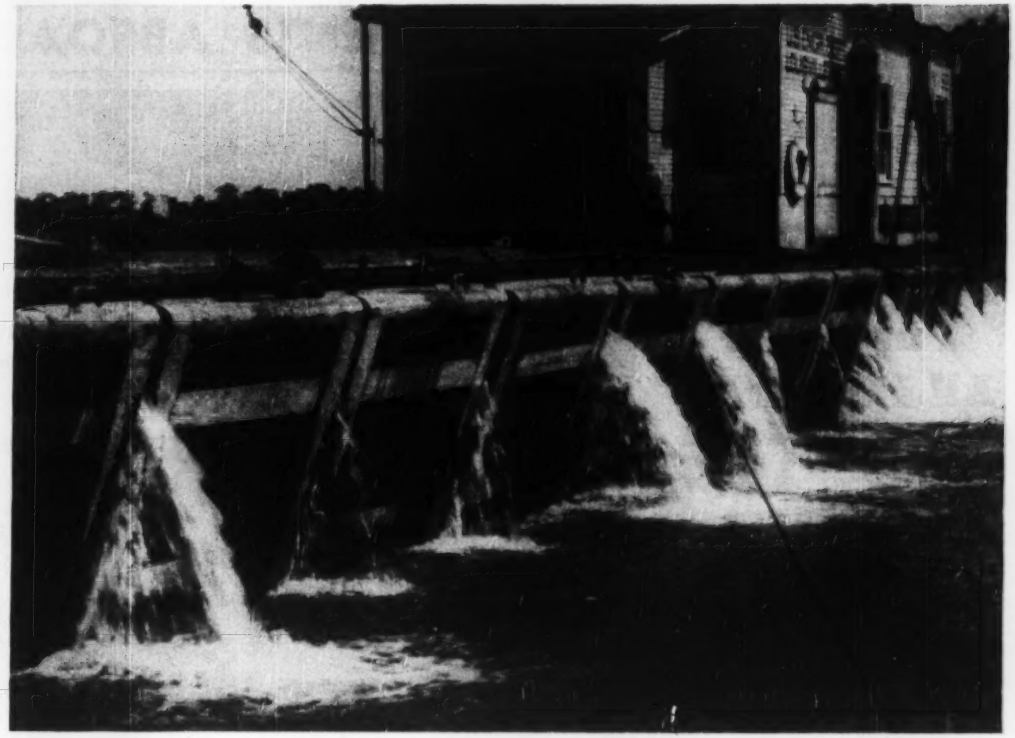
Most valid objection to metal wickets heretofore has been that they lack the resiliency of wood. As now operated on the Ohio wood wickets remain horizontal as they are lifted by derrick from their position on the river bottom. Then, force of the current swings them into upright position. Impact of wicket butts on the sills becomes increasingly severe as erection of the dam progresses, and head increases. This shock was considered too great for metal wickets.

In the newly developed design this difficulty was overcome by making the sills round and having the wickets rotate on them. Direct pull on their tops swings wickets up into position in one movement. Impact is eliminated since wicket shoes are constantly in contact with sills.

Fully welded design has simplified the new steel wickets, and it is hoped the developed dimensions will become standard to simplify operation, repair and replacement.

The body of the wicket consists of longitudinal side girders made from stock wide-flanged rolled sections, to which are welded the cross members and skin plating. The upper end is rounded to give a smooth crest, ending in a length of extra strong pipe across the head of the wicket. This pipe is the member that is engaged by a floating derrick's grappling device for raising the wicket. The lower end has a steel casting shaped to fit over the sill, maintaing line contact.

About half way up from its base the wicket is attached to the horse and prop. The horse is a tension member behind the wicket that ties it to the sill and holds it against the current when lowered. The prop is a compression member that holds the wicket, when raised, against the current. In the new design the prop is a steel pipe, filled with concrete to reduce its



NEW WICKETS at Dam 43 viewed from downstream show varying amount of leakage due to different types of side seals being tested. Old timber wickets now in use can be seen at right.

buoyancy and welded to cast steel head and shoe sections.

The head section is a yoke that transfers the prop load to the same transverse shaft the horse ties to. The shoe of the prop is designed to ride on the rib of a cast steel hurter and engage either of the hurter's two seats —to hold the wicket in either of the two inclined positions. Care was taken in design to lessen danger of sediment filling the hurter and preventing proper seating of the prop.

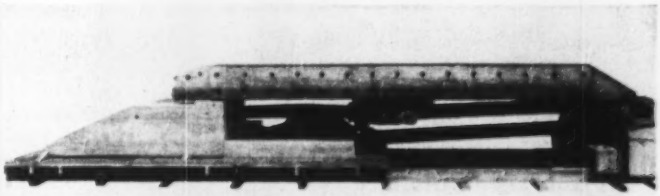
The hurter rests in a precast concrete hurter slab that mounts raised wooden support blocks. The wicket rests on these blocks where lowered, and the prop flattens out in the space between them.

In the replacement of old wickets with new, the old horses have been left in place and used to anchor the new precast hurter slabs on the river bottom. Lying horizontally as it does in its new use, the old horse in no way interferes with operation of the new wicket.

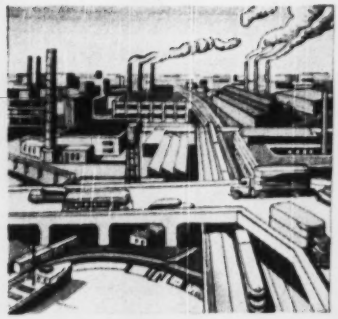
New sills replace the old sills, using the same anchor bolts but sitting slightly higher. The new rounded sills are cast of semi-steel 6 ft long—the full width of a wicket—and are assembled and anchored so as to be removed and replaced easily by a diver.

A great advantage of the new two-seat wickets over the old is that they lessen downstream erosion. To obtain discharge through the present wood wickets, they must be entirely lowered. This operation results in a concentrated discharge at high velocity that erodes the river bed. However, by alternately positioning the steel wickets in the 20-deg and 32-deg positions on the two-seat hurters, the discharges between the wickets are impacted, resulting in a mixture of water and air that causes the downstream velocities to remain near the surface. Scouring of the streambed is therefore largely eliminated—cutting the cost of scour protection.

Construction and tests at Dam 43 and design of the improved steel wickets have been carried out by the Louisville District under direction of Col. J. L. Person, district engineer.



LOWERED WICKET rests on wooden pads set in precast concrete support blocks. Note new rounded sill at extreme right and horse box of old wicket directly behind it. Horse of old wicket remains in place under new structure, anchoring precast concrete hurter slab.



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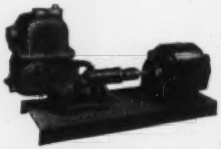
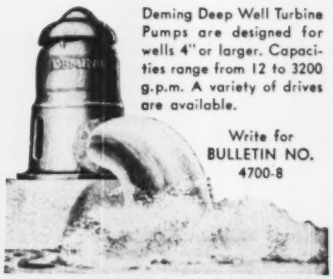
The complete Deming line of industrial pumps offers engineers an exceptionally wide selection of types and capacities. Following are examples.



Deming Self-Priming Centrifugal pumps are designed for handling from 10 to 300 g.p.m. against heads up to 250 feet. Automatic priming and re-priming. Stationary and portable types. Write for BULLETIN NO. 3300-A.

Deming Vertical Sump Pumps are available for wet or dry pit applications. Capacities range from 10 to 3200 g.p.m. against heads up to 120 feet. Impellers are adjustable for capacity, head and wear. Construction features of the various types and related performance tables are included in BULLETIN NO. 4607. Write for a copy.



Deming Deep Well Turbine Pumps are designed for wells 4" or larger. Capacities range from 12 to 3200 g.p.m. A variety of drives are available.

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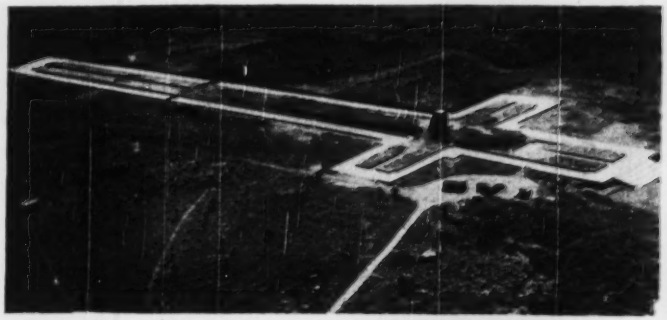
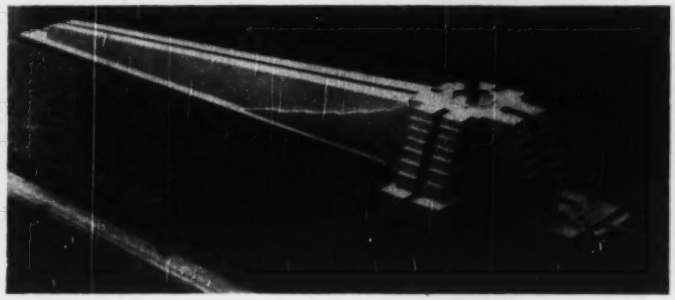


Aerial photo shows present stage of construction . . . .



and this is how the memorial will look when completed

Columbus memorial light to shine in Santo Domingo

As a memorial to Christopher Columbus, discoverer of America, the 21 American republics are cooperating in the construction of the Columbus Memorial Lighthouse near Ciudad Trujillo, capital of the Dominican Republic.

The Elmhurst Contracting Co., of New York City has completed or is working on nearly $4,000,000 worth of contracts on the structure.

The $10,000,000 memorial is founded on solid rock of a leveled-off hill and will be built entirely of reinforced concrete. The Elmhurst company's initial contracts covered site clearance and leveling, access roads and the like. It is now working on foundations for the central part of the building. J. S. Drinane is chief engineer.

In two contests in which engineers and architects from 49 countries participated, Lieut. Col. Joseph L. Gleave, of the British army and professor of engineering at the University of Edinburgh, won the prize of $25,000 for the best design for the memorial and was commissioned to supervise the construction.

It is a huge, recumbent cross, half a mile long and 131 ft. high, at whose center will be one of the world's most powerful beacons as a guide to ships and airplanes. The memorial is in the center of 2,500 acres given by the Dominican government to become an international park. Across the grounds on which the monument rests will stretch 21 avenues, each about 200 yd. long extending from the head of the cross and pointing in the direction of the 21.

The memorial park is on the east bank of the Ozama River and very nearly marks the exact spot where, 450 years ago, Bartolomo, the brother of Columbus, established the first city of Europeans in the New World, at Santo Domingo. It is midway between North and South America.

Completed is the Great Cross, the base on which the monument itself will rest. Half a mile long, it is one-tenth of a mile across its arms, which point to North and South America.

Construction of the monument and beacon is now under way. At is heart will be the Great Chapel. Above this structure will be the beacon, a single brilliant light supported on 21 symbolic pillars of concrete. The chapel will contain the remains of Columbus, at present preserved in a

sepulcher at the Cathedral of Santo Domingo.

Along the arms and length of the cross there is to be a structure of cast concrete blocks faced with stone. Along the full length of the axes of the cross there will be huge corridors open to the sky. Leading from these corridors there are to be 21 chapels or halls where each of the contributing nations will display its own share of Columbus relics.

The "great chapel" (actually the central chamber from which the main beacon will be projected) will be 52 ft in diameter and 75 ft high, containing 21 symbolic pillars which will support the beacon mechanism.

At night, from recesses along the corridors, brilliant beams of light will be projected into the sky. On cloudy nights, a giant cross will be outlined against the clouds. On clear nights, the beams will rise 3000 ft., supplementing the sweeping horizontal ray of the main beacon. The monument will have its own power plant.

Each of the 21 American republics is committed upon a pro rata basis to pay the cost of the memorial. The share of the United States is to be more than $800,000. Many of the South American countries have raised their share by the sale of special commemorative postage stamp issues. Spain and Italy also are contributing.

Local materials problems slow Australian building

According to CONTRACTING, a construction magazine of Sydney, Australia, American contractors planning to do major construction jobs in that country will find themselves in much the same position as Australian contractors if they have to depend on local sources for materials.

"It is undoubtedly a good thing for Australia that well-known contractors from other parts of the world come to this country and speed up the schedules on major Australian works. It is quite likely they can do so," says the magazine, but it points out that the average Australian contractor or authority is severely handicapped by lack of plant, materials and labor.

The magazine thinks that some difficulties may be overcome, but expects that "in effect, the most interesting part of the operations of any large overseas contractors in Australia will be their methods of handling labor and of obtaining the materials and plant for the job."

It is said that, so far, all negotiations with American contractors have broken down because of dollar difficulties.

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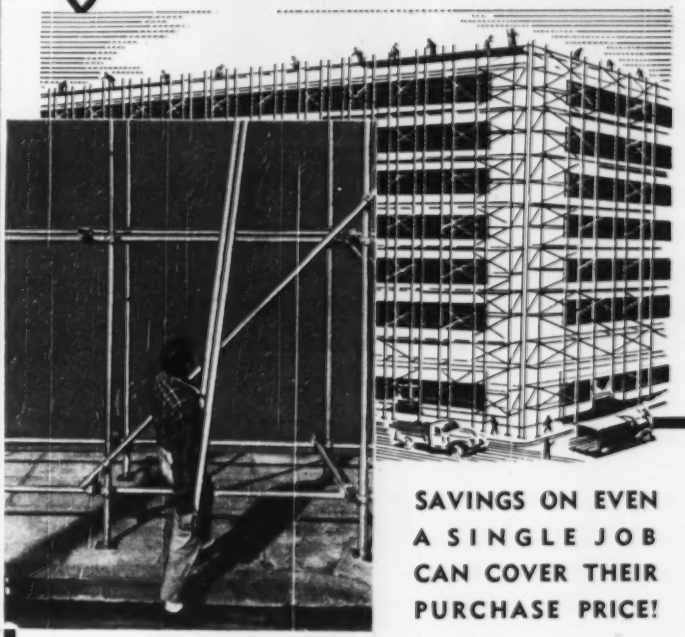

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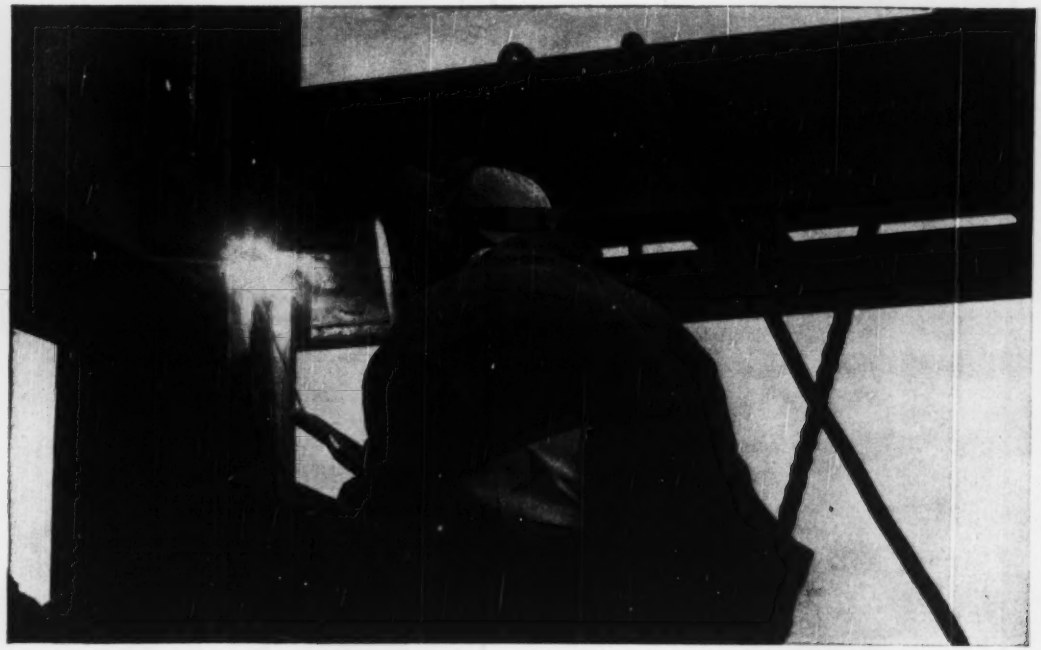

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These new advantages for the veteran of the shielded arc process have been made possible by Lincoln's development of a new "uniformity control" in manufacturing.

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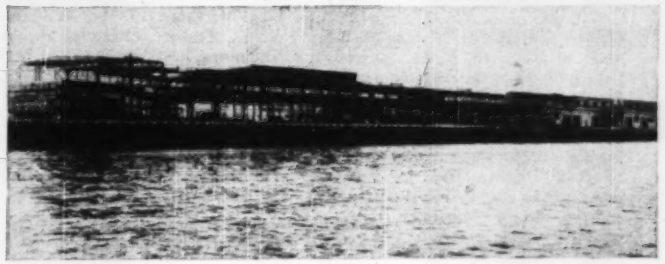

MARINE TERMINAL—Los Angeles Harbor's $4,300,000 modern marine passenger-cargo terminal is nearing completion. Total area of 8 acres will be assigned to the American President Lines. First unit, costing $2,750,000 is 75 percent completed and will be ready for occupancy by spring. That unit, shown above, is a two-story structure, 567x120 ft adjoining the present terminal. When this project is completed, the line will have one of the largest shipping sheds ever constructed—1,008 ft long and 120 ft wide.

Slum clearance process slow in New York City

That slum clearance in New York City is necessarily a slow process and not to be expected overnight is the view expressed in the second report of the mayor's committee on slum clearance by private capital.

The total slum acreage in the metropolis is 9,000. By 1955, the present clearance program will have cleaned out about 1,320 acres, leaving 7,680 acres still to be taken care of five years hence.

The committee says that representatives of large capital in banks, insurance companies, and real estate and building enterprises are slow to take an interest in slum clearance by private capital, as the field is new, untried and experimental. The procedure is cumbersome. The risks are great.

Under the new federal law, the committee says, private capital must be brought into the picture on a large scale if it is hoped to escape the necessity of a tremendously enlarged public housing program and the prospect of huge aggregations of completely subsidized low-income and low-rental tenants.

This year and next, it is anticipated that New York City may expect about $16,000,000 in housing grants from the federal government.

Low cost housing

More than a billion dollars' worth of new low-rent public housing for low income families is moving into the planning stage in 109 localities with the help of $19,838,000 in federal planning loans, Commissioner John T. Egan of the Public Housing Administration has announced.

These loans will be used for surveys and planning for 132,039 homes, which local housing authorities in those localities will build and operate under the public housing provisions of the Housing Act of 1949. In addition, 118 other localities have obtained local approvals for loans to cover the planning of 221,391 low-rent homes.

Local authorities will use the funds for preliminary surveys, site selection, appraisals, and architectural and engineering plans except final working drawings and definitive cost estimates.

A total of 810 communities have filed requests for the PHA to relinquish to them all of the federal government's right to 901 veterans' temporary housing projects comprising 81,100 dwelling units. The government still has 179,200 temporary war housing units and 133,000 permanent war housing units to be disposed of. Transfers are subject to agreements that preference will continue to be given to veterans of World War II in filling vacancies.

Chicago's new building code

The new performance-standards type building code for Chicago went into effect Jan. 30. The administrative section has yet to be written.

Architect John O. Merrill, who directed the revision of the code, recommended elimination of fire-resistive requirements for one-story houses of less than 1,500 sq ft built outside the fire limits. This would have allowed use of wallboard, breaking the virtual monopoly of plaster for interior wall finish. However, this was voted down. Instead, a compromise permits wallboard and plywood that can meet a flame-spread test and an impact test.

Dry-wall construction is permitted by the new code only in houses of 1,000 sq ft or less area outside the fire limits. Nearly all of Chicago, though, is inside the fire limits.

Other significant changes in the code are: One stairway instead of two in 2-story apartment buildings with no more than four apartments; lightweight steel construction with one-hour fire protection for buildings up to six stories, instead of four as in the old code; and one-hour fire resistance for the exterior walls of steel frame buildings, instead of the previous requirement of four hours.

At a series of weekly seminars at the Western Society of Engineers, the new code will be explained to architects, engineers, builders and contractors by those who had part in the revision. The city building department will have a representative at the meetings to answer questions.

Municipal Briefs

Boston's Arterial Highway—About 100 families will have to be moved to make way for the new arterial highway in the west and north ends of Boston, Mass. The first section to be built will be from Lechmere Square to Atlantic Ave., with branches to the Mystic River bridge and the Nashua St. circle.

Dallas Slum Clearance—U. S. Housing and Home Finance Agency has granted Dallas, Tex., $1,758,400 for slum clearance. Meanwhile the Dallas Council for Free Enterprise has been formed to fight the plan, seeking instead to have local property owners clear slum areas, believing that in the end this will be a cheaper process for the city. On May 6-8, experts of the Central Business District Council of the Urban Land Institute will make a study of Dallas' downtown problems and make suggestions for remedies.

Off-Street Parking—St. Louis, Mo., city officials announce that Traffic Commissioner Charles G. Gonter will make a survey of the city's off-street parking now that the state has given the city power to condemn land for parking lots and garages. Numerous sites have been suggested already. Among them is the downtown block at Eighth and Olive Streets now occupied by the old Federal Building. Another is the Jefferson National Expansion Memorial area. City Counselor James E. Crowe said the city will ask the federal government for permission to construct a block-square, 3-level underground parking garage there, east of the old courthouse, to hold about 1,000 cars.

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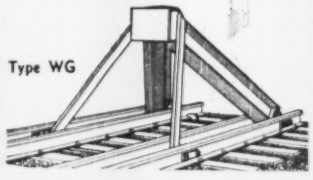

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MEN AND JOBS

Col. F. M. Albrecht is the new Garrison district engineer, Corps of Engineers, at Bismarck, N. D., succeeding **Col. John S. Seybold**, temporarily assigned to division headquarters at Omaha, Neb. Albrecht is a graduate of both West Point and Cornell. During the war, he was engineer in charge of Army construction in England, deputy chief engineer in the European theater, and on the general staff.

Perley M. Lewis, special engineer in charge of the Phoenix, Ariz., water system expansion, has been placed in charge of the water department. The appointment was made by **R. Gail Baker**, city engineer and water department superintendent. During the time Lewis has been in charge of expansion, the city has added about 11,000 customers.

Theodore Wisniewski of Madison has been appointed Wisconsin's first full time director of the State Water Pollution Committee. He is a graduate of the University of Wisconsin and took his postgraduate course in public health at the University of Minnesota. His experience includes supervising a federal-state rural sanitation program, district sanitary engineer, and assistant sanitary engineer for Wisconsin.

Howard S. Morse, executive vice-president of the Indianapolis, Ind., Water Co., has retired after nearly 25 years of management. He will remain as a member of the board of directors.

Don V. Gray, of the Wilmington, N. C., District Office of the Army Engineers, has been assigned to Durham, N. C., as resident engineer in charge of the construction of a new Veterans Administration hospital that will include a 11-story main building and eight auxiliary structures. Thompson and Street of Charlotte, N. C., has the general contract at $5,685,400.

Alfred O. Norris, formerly manager and vice-president of the Birmingham, Ala., Water Works Co., has been elected vice-president and general manager of the Indianapolis utility.

Elmer S. Barrett, former division engineer of State Highway Division 9, at Chillicothe, Ohio, is now Highland County engineer, at Hillsboro.

Paul C. Laux has been appointed assistant city water superintendent at Columbus, Ohio, a newly-created post. He is a graduate of Ohio State University.

Clair A. Hill, who has been in private practice in Redding, Calif., since 1938, will succeed **W. W. Green** as Redding city engineer. A civil engineering graduate of Stanford University, Mr. Hill is a member of the State Water Resources Board and currently consulting engineer for Shasta College, now under construction. During the war he spent 27 months in the Aleutians and was post ordnance officer on Adak Island.

Lt. Col. R. D. King, director, is shown presenting to three members of the soils division, Waterways Experiment Station, a cash award for a joint suggestion on using a mixture of mud to obtain undisturbed sub-surface sand samples. Left to right, Willard J. Turnbull, chief of soils division; Decatur P. Jones, Ancel O'Brown, Joseph K. Elliott, recipients of the award, and Colonel King. The principal feature of the suggestion is the use of relatively heavy drilling mud to retain the sample in the tube during withdrawal from the bore hole. On one project the new method is said to have saved the government $10,000.

Charles S. Heidel is now field representative of the survey on international water problems of the St. Mary, Milk, and Belly Rivers and their tributaries. A former state engineer of Montana, he entered into full-time service with the survey in 1930.

A. J. Bowering, district engineer with the provincial works department at Merritt, B. C., has been appointed construction engineer with headquarters at Victoria, B. C., for the Provincial Department of Public Works.

G. M. Mouring has been appointed assistant to the chief engineer of the Maryland and Pensylvania R.R. Co. at Baltimore.

John H. Cline, Jr., civil engineer, and **J. Austin Zerkle**, architect, have formed Cline & Zerkle to practice architecture and engineering in the Pacific Bldg., 610–16th St., Oakland, Calif. Mr. Cline, a graduate civil engineer from the University of California, has been in engineering since 1941, first with Donald R. Warren Co., and later as a partner in the H. M. O'Neil Co. and as the J. H. Cline Co. Mr. Zerkle, who has a M.A. degree from the University of California School of Architecture, has been with Mr. Cline for the last four years in design and supervision of construction of industrial, county, and public buildings.

M. G. Cornelius of Houston, Tex., has been made Texas state highway department district engineer at Yoakum, succeeding **M. B. Hodges**, transferred to Del Rio.

Paul E. Morgan of Ames has been made assistant public health engineer of Iowa. He was graduated from Iowa State college, Ames, in civil engineering in 1944. He served with the Navy Seabees for two years and as Algona, Ia., assistant city engineer for two years. He then was with Rowat and Murray, Estherville, Ia., consulting engineers, for two years.

George A. Rhame, formerly with the post engineer at Fort Jackson, S. C., has been made sanitary engineer with the South Carolina Board of Health and a member of the newly-created Water Pollution Control division.

John J. Cole has been appointed manager of the industrial department of Sanderson & Porter, engineers and constructors, New York, Chicago, San Francisco and Los Angeles.

(Continued on page 42)

Shovel lies down on the job

The experienced shovel operator on this West Virginia job didn't know why it happened.

He had just lifted a 1000-pound stone, swung to the left and reached a position with the boom pointing directly ahead. The shovel was on a firm base.

But suddenly the shovel tipped and fell on its right side, causing extensive damage to itself.

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4

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RAMSET eliminates slow, costly, tedious drilling, chipping, tapping and plugging. Actual fastening time with RAMSET—less than one minute per fastener with any of the 65 types and sizes of plated RAMSET FASTENERS.

In 20 seconds, RAMSET can be loaded, ready for use. Place the Tool against the work—and RAM! The fastener is SET!—tight and right. RAMSET requires no complicated methods or separate small parts that can be lost or forgotten. RAMSET TOOLS may be cleaned and reassembled in less than five minutes, to keep them at top operating performance.

A 15-minute demonstration will show you how much time, money and trouble RAMSET can save. Call your local RAMSET representative today or ask us for details and free Cost Comparison Sheet.

Ramset System

SAVES TIME . . . CUTS COST ON JOBS LIKE THESE:

Fastening—

- Metal framework to walls, floors and ceilings.
- Supports to concrete, brick and steel.
- Wood sills to concrete.
- Metal roofs or walls.
- Wiring and conduits.
- False ceilings and lighting fixtures.

STEMCO CORPORATION

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E. J. Beatty, city engineer, Sheboygan, Wis., has been named engineer-manager of the Urbana-Champaign Sanitary District, Champaign, Ill., succeeding **Walter M. Kunsch**, to be field engineer during construction and superintendent of the sewage treatment and incinerator plant, Waterbury, Conn. Mr. Beatty is a graduate of the University of Iowa. He has been sanitary engineer for the Wisconsin state board of health and superintendent of the Neenah-Menasha, Wis., sewerage plant. During the war he was a captain in the Sanitary Corps of the U. S. Army.

Charles F. Potter, for the last 20 years general superintendent of the Aberthaw Co., Boston, Mass., has retired. He has been with the Horton & Hemenway Co., Holt & Fairchild, and General Building Co., all of Boston. In his last connection he worked on numerous institutional and industrial buildings in eastern New England. **Charles E. Potter** has succeeded his father as general superintendent. After attending Massachusetts State College he joined Aberthaw in 1929, and was assigned to building construction jobs. He joined the U. S. Army Engineers and served for three years in the South Pacific, becoming a major.

Charles A. Jackson, resident engineer at the Allatoona Dam on the Etowah River near Cartersville, Ga., will be resident engineer at the Buford Dam, near Gainesville, Ga.

James Comforti, Jr., a civil engineer graduate of New York University, has joined the staff of the William L. Crow Construction Co., New York. During the war he was a lieutenant commander with a construction Battalion of the U. S. Navy, and is now commanding officer of the U. S. Naval Reserve Construction Battalion at Fort Schuyler, N. Y.

with Cleaver-Brooks Equipment...

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A Cleaver-Brooks Tank Car Heater is the starting point for fast work on any construction project. A faster job means man hours saved — contracts completed on time and without penalties. Designed for fast steaming, this unit gives you 125 lbs. steam pressure in 20 minutes with high heat transfer and low fuel consumption. Available in two sizes, skid or trailer mounted — Two car heater (28 bhp), Three car heater (42 bhp).

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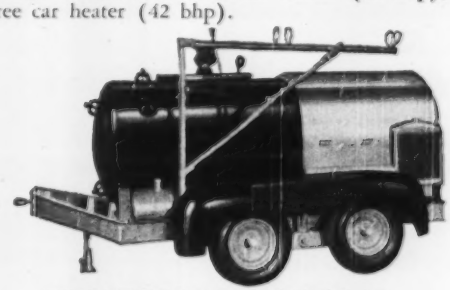

PUMPING BOOSTER

It all sums up to more work and more profit with a Cleaver-Brooks Tank Car Heater or Pumping Booster. Write today for further information.

Cleaver-Brooks Co., 389 E. Keefe Ave., Milwaukee 12, Wis.

Write on Your Business Letterhead . . . For the Bituminous-Mix Calculator — a ready reference slide rule showing weight of mix needed in lbs. and tons based on area and depth of area to be covered.

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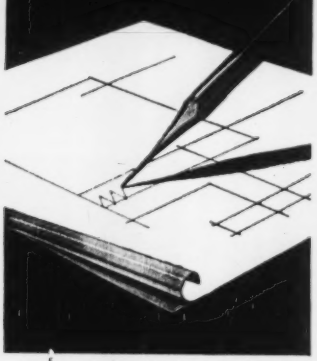

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Erasures are made easily, without damage. It gives sharp, contrasting prints of the finest lines. It resists the effects of time and wear, and does not become brittle or opaque.

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SOLD BY LEADING STATIONERY AND DRAWING MATERIAL DEALERS EVERYWHERE.

EDUCATION and RESEARCH

Housing Research

Richard V. Ratcliff, director of the new Housing Research Division of the Housing and Home Finance Agency has appointed Leonard G. Haeger as assistant director for program coordination, and A. C. Shire as head of the housing technology branch. (ENR Feb. 16, page 17.)

These appointments are the first steps towards the carrying out of the section of the Housing Act of 1949 providing for research and studies for the development, demonstration, and application of new and improved building materials, methods, and techniques to increase housing production and to lower costs.

Haeger formerly was head of the HHFA division of standardized building codes and materials. He will now be in charge of relationship with other government agencies and industries engaged in housing research.

Shire has had long experience in housing research, design and construction. He will have charge of activities to improve housing construction and lower costs through technological advancement.

At the University of Toledo, Ohio, John K. Selden has been appointed coordinator of housing research for the Research Foundation of the university. He and his department, under Director A. Solberg, will be concerned with research on housing materials—how to prevent or reduce shinkage, warping, cracking and other damage to homes. The project will also aim at lighter and stronger masonary units.

Educational Notes

Welded Truss Analysis—One of the principal features of the Ohio State Welding Engineering Conference at Ohio State University, Columbus, April 14-15 will be a talk on "The Analysis of an 80-ft. H-section Welded Truss", by A. T. Waidelich, vice-president and manager of the research division of The Austin Co., Cleveland.

Science Building—The construction of a $1,500,000 science building at the University of Oregon, Eugene, has been approved by the building committee of the Oregon State Board of Higher Education.

Water and Sewage Study—The thirteenth annual short course for water and sewerage personnel will be held at Louisiana State University, Baton Rouge, on March 15-17. It is sponsored by the General Extension Division of Louisiana State University, in cooperation with the Louisiana State Board of Health and the Louisiana Conference on Water Supply and Sewerage.

To meet rising costs—The graduate school of Stevens Institute of Technology has a plan to meet a problem which many colleges face today, that of adjusting education services to rising costs and uncertain income. The school carries on cooperative courses with New York University and the Newark College of Engineering, as well as the Westinghouse Electric Corp. This permits pooling instructors, educational and research facilities. This is brought out in the 19th annual report of the graduate school by Robert H. Baker, director, to President Harvey N. Davis. "Cooperative programs enable the school to add to its advanced fundamental courses by filling in a limited number of advanced specialized courses which the school would otherwise be unable to give," Mr. Baker said.

Expanding Campus—Three acres of land were cleared and 40 slum buildings razed last year in the program of

HYDRAULICS COMPUTER—Arthur T. Ippen, professor of hydraulics at the Massachusetts Institute of Technology, right, and Henry M. Paynter, Jr. instructor in civil engineering, review a hydroelectric plant problem as it is set up for quick solution on the special electric equipment in the background—an analog computer. The use of this automatic computer for rapid solutions to hydraulic engineering problems is now under study at M.I.T., and it may soon be applied to give answers heretofore available only as a result of lengthy analysis by engineers. The machine gives a television-like picture of how water behaves in various systems.

land clearance and redevelopment of the Illinois Institute of Technology in Chicago's Near South Side. Last year, a 10-story apartment building on South Michigan Ave.—Gunsaulus Hall—was finished and occupied by married students and staff members. Also a new heating plant and steam distribution system for the entire Technology Center was put in operation.

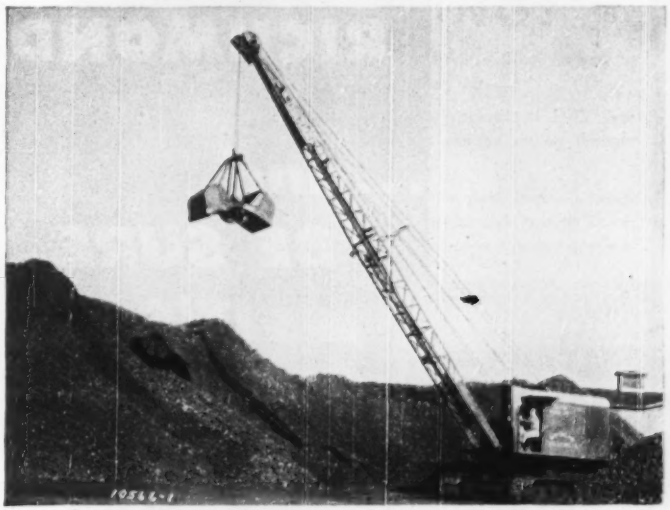
Alumnus Honored—Charles W. Harris, engineering professor at the University of Washington, has been selected as "Alumnus Summa Laude Dignatus" (Alumnus worthy of the highest praise) of the university for 1950. Professor Harris entered as a student in 1899, a year after the civil engineering department was established, and was the only member of the class of 1903 to receive a civil engineering degree. He became an instructor in civil engineering in 1906 and has served the university without interruption ever since. He now has the longest record of continuous service of any faculty member. He is a leading authority in hydraulic engineering, best known for his work in solving hydraulics problems in connection with the Hell's Gate project on the Fraser River in British Columbia. In that research, he made the first detailed study of stream conditions and built scale models of the river that simulated the actual currents that existed there. From those studies, it was possible to overcome obstructions in the river and restore the important Fraser River salmon run.

A $250,000 Grant—James R. Killian, Jr., president of the Massachusetts Institute of Technology, has announced a grant-in-aid of $250,000 from the Socony-Vacuum Laboratories of the Standard Oil Company of New York for support of the educational and research program at the institute. It will be made in payments of $50,000 annually over a period of five years. The fund will be used for nuclear physics and nuclear power development, combustion, heat transfer, improved spectro-chemical analysis and absorption spectrophotometry, crystal structure, corrosion, flow-properties of non-Newtonian fluids, lubrication and wear and use of radioactive tracers in organic chemistry.

Municipal Advice—M. U. Snoderly, civil engineer of Nashville, has been appointed a consultant on public works at the University of Tennessee. His full-time duty will be with the Tennessee Municipal Technical Advisory Service to advise municipal officials on proposed public works and other engineering problems.

OSGOOD

Model 727 cuts handling costs at New England Coal & Coke Company



Handling costs are cut to a minimum at New England Coal and Coke Company, because huge coal tonnage is moved quickly and easily by one man at the controls of an OSGOOD Clamshell Model 727. He doesn't have to be a muscle-man either because all controls are activated by air—and the simple, dependable OSGOOD Air Cushion Clutch assures swing, hoist, and travel motions that are instant, accurate, velvet smooth. Write today for full information on the many advantages of Model 727 or other profit-boosting OSGOOD machines for widely varying applications.

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DIESEL, GASOLINE OR
ELECTRIC POWERED
CAPACITIES ½ TO 2½ CU. YD.

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GENERAL OFFICES—ALLENTOWN, PENNA. U.S.A.
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RICHMOND DEPENDABILITY

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EVERY DAY MORE AND MORE CONCRETE MEN CONCLUDE: THERE IS NO SATISFACTORY SUBSTITUTE FOR RICHMOND!

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OBITUARY

Carl G. Naylor, 70, founder and president of the Naylor Pipe Co., Chicago, died Feb. 15. His company was the principal delevoper of the flexible pipe lines used to supply fuel to Allied troops during the Normandy invasion.

J. G. Nichols, 69, a member for 22 years of the National Park and Planning Commission, Washington, D. C., and developer of the Country Club Plaza district on the south side of Kansas City, Mo., died Feb. 16. In 1920 he was appointed by President Coolidge on the commission to help beautify the District of Columbia.

Fred R. Williams, 73, engineer who supervised development of Ohio state highways and Cleveland's streets, sewer system and bridges, died Feb. 19. As county engineer he had supervisory control over planning and construction of the Lorain-Carnegie, Bedford Viaduct, White House Crossing, and Brookpark Road, Main Avenue and Cedar Point bridges.

John A. Angus, 63, construction supervisor with E. L. Bruce Co., Memphis, Tenn., since the early years of World War II, died Feb. 17. A former New York architectural engineer, he went to Memphis in 1923 as engineer in charge of construction of the Union Planters Bank Building. Mr. Angus also was connected with construction of the King Cotton Hotel, St. Mary's Episcopal Cathedral, and the Federal Reserve Bank Building.

Harris Epstein, 60, structural engineer for the Navy Bureau of Yards and Docks, died Feb. 20 in Arlington, Va. As head of the waterfront structures section of the bureau, Mr. Epstein had designed piers, quay walls and graving docks at many of the Navy's principal installations in the United States and in the Pacific. Among the graving docks Mr. Epstein had designed were those at Pearl Harbor in which most of the ships damaged by the Japanese attack were salvaged. He had also designed the foundations for the Navy's 450-ton overhead crane at Hunter's Point, San Francisco Bay. A native of Minsk, Russia, Mr. Epstein came to this country in 1907. He studied at Cooper Union day school in New York and at the City College of New York, where he received a civil engineering degree. He joined the Bureau of Yards and Docks in 1917 and had been there ever since.

AND CONTRACTS WILL BE A'LETTING!

Yes, Spring is approaching and its arrival will be marked by contract letting and acceleration of jobs under way.

Since profitable operations today are more dependent than ever before upon efficient tools, alert contractors will be giving thought to the purchase of essential new equipment.

In this connection you should have a copy of the new Owen Catalog. It not only illustrates and describes the comprehensive line of Owen Buckets and Grapples but contains many photos of equipment applications that will be interesting and helpful.

Write today for your copy.

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- ✓ Up to $500 savings in initial cost
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. . . the same Le Roi high quality in a compact package

The new Airmaster uses the proven Tractair power-plant to give you a low cost, low upkeep 105 CFM compressor. Operates two heavy breakers, or 3 to 4 clay-diggers and similar light tools. One cooling and one lubrication system . . . a single crankshaft and crankcase — lighter weight for easy handling, fewer parts for lower maintenance and greater dependability.

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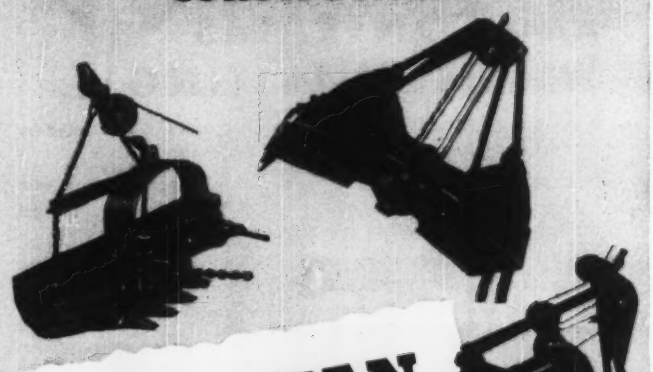

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● Wellman pioneered **welded rolled steel construction** for longer life and greater service. It's the extra strength that gives the extra, low-cost digging power. Whatever your requirements . . . whether for Multiple Rope, Power Arm, Dragline, Power Wheel or Special Service—specify Wellman! ⅜ to 16½ yd. capacity.

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ANY TYPE
ANY SIZE
ANY SERVICE

Only Ellicott offers: 65 years of experience in dredge building; **a complete line in all sizes; undivided responsibility**—your dredge is designed, built and delivered under *one* contract.

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1603 Bush St., Baltimore 30, Md.

Frank A. Peabody, 82, Houlton, Me., formerly chairman of the Maine State Highway Commission, died Feb. 17. He was a member and chairman of the State Highway Commission from 1915 to 1925, and again from 1929 to 1934.

Charles F. Bedwell, for 30 years construction engineer of the New Jersey State Highway Department, died Feb. 18 at Trenton. He was a graduate of McGill University, Montreal, and prior to his service with the state was construction engineer for the former Public Service Railway Co. of New Jersey.

Robert A. Ireland, 49, a civil engineer with the United States Air Force headquarters in Washington, D. C., died Feb. 16 in Takoma Park, Md. A veteran of World War II, Mr. Ireland served in the Army from 1943 to 1946, having been discharged as major. Before entering military service, he was a civil engineer at Mechanicsville and Harrisburg, Pa.

John Braunwalder, 77, structural engineer, died Feb. 14 in Glendale, Calif. Prominent in Chicago engineering, Braunwalder supervised heavy steel construction on such projects as the Chicago Merchandise Mart, Chicago Civic Opera House and the Illinois Steel Corp. sheet mill at Gary, Ind. He was employed by Stone and Webster for many years.

James Bruce Thomson, 94, president of the Thomson Construction Co., Ltd., and one of the first building contractors in Toronto, Ont., died there recently.

Frank R. Wetyen, 57, Corps of Engineers, Fort Belvoir, Va., died Feb. 14. He served at Fort Belvoir during World War I with the 301st Field Signal and Utilities Detachment. During his service at the installation he received the Army's award for meritorious civilian service in 1945 and the Corps of Engineers 30-year emblem last summer.

Albert F. Ponesmith, 75, who was active in construction in Baltimore, Md., for more than 30 years, died on Feb. 8. He supervised construction of the Fallsway in Baltimore, the Perryville-Port Deposit Highway in Maryland, and the bridge at Phoenix, Md.

Homer Keith, 67, former deputy minister of the Department of Public Works of Alberta, and the engineer responsible for building the chain of airports along the Alaska highway, died at Edmonton, Alta., Feb. 15.

MATERIALS AND LABOR PRICES

Market quotations on construction materials and wage rates reported monthly by ENR correspondents
April Materials and Labor Prices will appear in the April 6, 1950 issue

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots incl. $1.00 per bbl. for bags, cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots			CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8 x 8 x 16-in.; truckload del.; per block		CONCRETE Ready Mixed 1:2:4, aver.
	Cloth	Paper	Bulk	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand gray	Lt. wgt. agg.	50 c.y., del.
Atlanta	$4.16	$3.41	$3.10	$2.00	$2.00	$1.75	$2.10	$2.10	$1.65	$1.85	$0.1725	$0.1725	$11.00
Baltimore	....	3.39	3.14	2.40‡a	2.40‡a	1.95‡a	2.60‡a	2.70‡a	2.45‡a	2.45‡a	.16	.16a	10.25
Birmingham	3.75	3.00	2.68	2.06	2.06	1.84	2.50	2.50	1.00	1.20	.145	.145	7.75
Boston	....	3.67	3.41	2.50a	2.50a	2.50a	1.60a	1.70a	....	....	.196	.205a	10.45h
Chicago	3.63/3.69	2.82/2.89	2.58/2.64	2.75‡b	2.75‡b	3.20‡b	2.75‡b	2.75‡b	2.00‡	2.00‡	.20	.20b	9.70
Cincinnati	4.14	3.34	3.08	1.75‡e	1.75‡e	1.85‡e	2.00‡k	2.00‡k	1.50	1.50	.185	.205	11.65d
Cleveland	3.83	3.03	2.75	1.90ef	1.65f	1.55	3.55‡a	3.55‡a	2.75‡	2.75‡	....	.21	11.80g
Dallas	3.57	2.82	2.52	2.00	2.15	1.75	2.10	2.15	....	....	.089a	.125	9.30
Denver	....	3.54	3.29	1.85	2.00	1.15	....	....	....	....	.20	.23a	9.65
Detroit	....	3.03	2.73	3.25‡b	3.25‡b	3.00‡b	2.75/3.00‡	2.75/3.00‡	3.00‡	3.00‡	.17	.18a	9.85
Kansas City	3.93	3.13	2.88	1.90	1.90	1.50‡	1.90a	1.90a	....	....	.17ag	.215e	10.40h
Los Angeles	....	3.72a	3.32a	1.94‡a	2.04‡a	1.74‡a	1.92‡a	1.92‡a	....	....	.12f	.227	9.70hh
Minneapolis	4.13cd**	3.33cd	3.07cd	2.40‡ag	2.40‡ag	1.45‡ag	2.50‡ag	2.50‡ag	....	....	.21s	....	10.90fs
Montreal	....	2.46ac	2.31ac	.....	2.50kt	2.00t	1.30cj	1.60cj	....	....	.22	.20a	9.05ek
New Orleans	....	2.90e	2.65e	2.32	2.32	1.82	....	....	1.05	1.25	.25	....	12.40
New York	4.29	3.49	3.24	2.10bk	2.10bk	1.45bk	2.35bl	2.35bl	....	....	....	....	10.90a
Philadelphia	3.93/4.23‡	3.13/3.43‡	2.87/3.17‡	2.45‡	2.55‡	2.05‡	1.90‡	1.95‡	1.50	1.50	18/.22	....	10.80
Pittsburgh	3.90	3.18	2.85	2.05‡	2.05‡	2.00‡	2.50‡	2.50‡	2.05	2.05	.21d	.21d	10.85
St. Louis	....	2.94/3.05b	2.75b	2.40‡am	2.40‡am	2.00/2.40‡am	1.60bj	1.60bj	1.15	1.15	.215	.24cn	10.40
San Francisco	....	3.39	2.99	1.86	1.86	1.96	1.96	....	....	....	....	.25c	10.15c
Seattle	....	3.55a	3.05a	2.75‡bm	2.75‡bm	2.75‡bm	3.50‡bm	3.50‡bm	....	....	.22j	.3135j	9.75j

‡ Delivered. * Prices incl. dealers comm. except as noted. ** Prices incl. dealers comm. except as noted.
CEMENT: *a* Subj. to 10¢ dis. *b* Less 2% for cash. *c* CL price dealers' comm. not incl. *d* Dealers sell only LCL. *e* Plus switching charges. ** May be discontinued after Jan. 1.
SAND, GRAVEL, STONE & SLAG: *a* Truck lots. *b* Per cu. yd. *c* 5 tons or more. *e* ¾". *f* Pea gravel. *g* Less 5% for cash. *h* Less than 5 tons. *i* Sales tax incl. *j* F.o.b. quarry. *k* Barge lots and. *l* F.o.b. scow Hudson River. *m* Less 2% for cash.
CONCRETE BLOCK: *a* Cinder. *b* Waylite. *c* Haydite. *d* Celocrete. *e* 5½ x 8 x 12 in. *f* 8 x 4 x 16. *g* F.o.b. truck at job. *i* Less 2% for cash. *j* Less 1% for cash.
READY MIXED CONCRETE: *a* 5 cu. yds. or over del. Man. *b* 25 cu. yds. or more. *c* 10–100 cu. brackets. *d* Truck loads up to 500 cu. yds. *e* 2,000 lb. concr. *f* 2500 lb. comp. *g* Aver. haul 7–9 mi. none. *h* Less 50¢ for cash. *i* 5% off for cash. *j* 2% off for cash. *k* Sales tax included. *l* 1:2½:4.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month, on carload deliveries, no trucking, same as dealer cash discount 10c. per bbl. for payment within 15 days of date of invoice. Subject discount 10c. per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For cloth bags, add $1.05 per bbl.; 25¢ refund allowed for each returnable bag; for paper bags add 25¢ per bbl., not refundable

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn.	$2.40†	Buffington, Ind.	$2.30	Steelton, Minn.	$2.40	Muskegon, Mich.	$2.50†	Toledo, O.	$2.40†
Clinchfield, Ga.	2.40†	Independence, Kan.	2.30	Leeds, Ala.	2.25	Saginaw, Mich.	2.35†	Milwaukee, Wis.	2.50†
Kingsport, Tenn.	2.40†	Hannibal, Mo.	2.35	Duluth, Minn.	2.40	Wyandotte, Mich.	2.40†	Green Bay, Wis.	2.50†
West Des Moines, Iowa	2.45†	Northampton, Pa.	2.40	Hudson, N. Y.	2.40	Buffalo, N. Y.	2.40†	Ironton, O.	2.30
Nazareth, Pa.	2.40†	Universal, Pa.	2.40	Alpena, Mich.	2.25†	Oswego, N. Y.	2.60†	Montreal City	2.13
Bath, Pa.	2.40†	Waco, Tex. (+ 9¢ tax)	2.20	Detroit, Mich.	2.40†	Cleveland, O.	2.40†	W. Winfield, Pa.	2.40†

†*Prices to hold for first quarter of* 1950

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK			PAVING ASPHALT Per ton, less than 80 penetration		ASPHALT BINDERS—FLUXES Per gal., 80-300 penetration		CUTBACK ASPHALT Per ton		ROAD OIL Per gal.	ASPHALT EMULSION (Quick-breaking) Per gal.	
	Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	Tank car	Drums	Tank car	Drums	Tank car	Drums	Tank car	Tank car	Drums
Atlanta	$73.00	$35.00	$2.25	.....	.....	.....	.....	.....	.....	.....	.....	.....
Baltimore	150.00‡	57.70‡	.....	$21.00	.....	$.085	$0.14	$.085	$.16	$.085i	$.085	$0.11
Birmingham	.....	32.50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston	.....	.....	.....	24.50a	$35.50a	.1036a	.185a	.115aw	.205aw	.10a	.113a	.205a
Chicago	155.00‡a	85.00/88.00‡b	2.70/3.50‡f	20.25b	30.25b	19.25bv	29.25bv	.0875bw	.16w	.075b	.1025/.1075b	.15/.1675b
Cincinnati	.....	.....	.....	19.00k	.....	.085	.0890	.085w	.....	.....	.....	.....
Cleveland	.....	49.00‡	3.43g	25.00	35.00	25.00v	34.50v	.105w	.22w	.10	.115	.25
Dallas	d	40.00	d	23.95	42.99	.1012	.1898	26.99	47.97	.0987	.1062	.1423
Denver	.....	43.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	.....	.....	26.65	.....	12.00v	.....	.097dw	.....	.092	.....	.197
Kansas City	.....	40.00d	.....	18.05cl	.....	.....	.....	.07ew	.0725w	.0585e	.....	.....
Los Angeles	d	.....	d	12.50dm	.....	12.50dv	.....	14.00d	.....	12.50dv	.0775f	.1575f
Minneapolis	.....	.....	2.83h	25.50	36.00	22.00v	33.00v	24.00	35.00	.09	.12	.22
Montreal	137.00	e	e	27.00n	36.65n	16.70nu	18.70nu	16.30nw	18.30nw	13.20na	.174n	.215na
New Orleans	.....	.....	.....	16.50e	.....o	16.5cv	.....o	.08ew	.....o	.0775	.08	.1425e
New York	.....	.....	2.35f	23.50	35.86q	22.50v	41.88qv	.0940w	.1767qw	.0890	.0940	.1747q
Philadelphia	150.00	110.00	4.06	23.00	.....	22.00v	.....	.095w	.....	.....	.....	.....
Pittsburgh	165.00	42.00	4.50	22.00	35.00	11	23	27.00	39.00	.095	.10	.21
St. Louis	.....	.....	.....	21.65f	.....	1683	.....	.0925w	.....	.15	.1081	.25
San Francisco	.....	62.75c	.....	14.50q	30.00qp	14.50qkv	.....	16.50q	.....	.....	.08	.14
Seattle	.....	.....	.....	15.50h	36.00h	16.00hv	.....	.175hw	.215hw	16.00hv	.08h	.09h

‡ Delivered.
PAVING BRICK & BLOCK: *a* CL. *b* 3½ x 4 x 8½. *c* 2½ x 8½ x 4. *d* F.o.b. Buffalo, Kans. *e* Not used. *f* 2" interior 6¢ treat. *g* 3". *h* 8¢ treat.
ASPHALTS: *a* Price at plant, Everett, Mass. *b* F.o.b. refinery, Lockport, Ill. *c* F.o.b. Sugar Creek, Mo. *d* F.o.b. refinery, El Segunda, Calif. *e* F.o.b. Baton Rouge. *f* F.o.b. Wood River or Roxana, Ill. *g* F.o.b. Richmond, Calif. *h* F.o.b. Martinez. *i* Bulk refinery. *j* F.o.b. refinery, Englewood, Calif. *k* 50–110 penetr. *l* Less than 100 penetr. *m* 40–80 penetr. *n* Tax incl. *o* Drums not avail. *p* Shipped in steel bbl. *q* Use of used drums. *r* In customer's drums. *s* Shipped in drums, per drum. *t* 55-gal. drums. *u* Per 100 gal. *v* Per ton. *w* Per gal.

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT. SHAPES-PLATE	REINF. BARS billet	RIVETS ½-in. structural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	Light	Re-rolled	TRACK SUPPLIES Angle Bars	Std Spikes	Tie Plates	Track Bolts
Birmingham Area	$3.40	$3.45	$7.25	....	$68.00	$75.00	Not	$4.40	$5.35	$4.20	....
Chicago Area	3.40	3.45	7.25	$4.20	68.00	75.00	avail-	4.40	5.35	4.20	..
Pittsburgh Area	3.40	3.45	7.25	4.20	68.00	75.00	able	4.40	5.35	4.20	....
Buffalo Area	3.45	3.45	7.25	4.20	68.00	75.00	....	4.40	5.35	4.20	$8.50
Cleveland	..	....	7.25	....	.....	.....	.....	....	....	....	8.50
Youngstown Area	....	3.45	....	....	.....	.....	.....	....	5.35	....	....
Geneva	3.40	....	....	....	.....	.....	....	.. ..	....	....	....
Los Angeles	....	4.15	....	....	.....	.....	.....	....	5.35	....	....
Pueblo	3.40	3.45	....	....	68.00	75.00	....	4.40	5.35	4.20	8.50

IRON AND STEEL PRODUCTS—F. O. B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb base price	REINFORCING BARS Per 100 lb., base price u: 5 tons to carload lot b New billet	Rail steel	Add switch	$/cwt for Del.	EXPANDED METAL LATH k Per 100 sq. yd., carload lots Std. diamond mesh, 3.4 lb.	Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCING dd Per 100 sq. ft., carload lots 4x16 in., No. 5 & 10 wires	4x12 in., No. 8 & 12 wires	6x6 in., No. 6 & 6 wires
Atlanta	$4.75‡	$5.225k	$5.225k	$.025	$.10	$31.50	$31.50			
Baltimore	5.80	4.91l	....	....	.10	40.00	43.00			
Birmingham	5.20	5.15	5.15	.05	.15	43.00p	45.50p			
Boston	5.75k	5.58k	5.56kz	....	.10/.15	31.00	33.00			
Chicago	5.05	4.40ff	4.40ff	.0625	...	32.00‡	34.50‡			
Cincinnati	5.50‡r	5.50r	....	....	....	33.00zee	35.00-zee			
Cleveland	5.17	4.47s	....	....	.10	34.00‡	36.50‡			
Dallas	6.75	5.30	5.30	....	....	43.50	46.00			
Denver	6.45	6.65e	....	....	....	48.00s	57.00qs			
Detroit	5.64‡	5.10m	...	....	.10	34.40	43.00			
Kansas City	5.65s	5.50e	...	....	....	38.50s	41.00s			
Los Angeles	5.50fhh	5.25g	....	....	.15	37.00f	41.00kk			
Minneapolis	5.41hh	6.02ll	6.02ll	....	.15	33.50	36.00			
Montreal	6.75i	5.15k	5.15g	...	....	44.10h	46.80h			
New Orleans	...	5.40ok	...	.05	.10	38.50	41.00			
New York	5.45r	5.58	5.33	....	.20	35.50at	38.00at			
Philadelphia	5.25	5.55	....	....	....	34.50‡	36.50‡			
Pittsburgh	4.90/5.00	4.90/5.00	....	....	.10	32.50	34.50			
St. Louis	5.58k	4.77e	4.77e	....	....	c 42.00nn	48.00nn			
San Francisco	6.00si	5.75s	....	....	.15	37.50	40.00			
Seattle	4.05e	5.35el	....	....	....	82.00mm	42.00mmmz			

A.P.M.* Joliet, Illinois, Donora, Penn., $2.46; F.o.b. Mill: Monessen, Penn., $2.46

A.P.M.* Joliet, Illinois, Donora, Penn., $1.75; F.o.b. Mill: Monessen, Penn., $1.75

A.P.M.* Joliet, Illinois, Donora, Penn., $2.58; F.o.b. Mill: Monessen, Penn., $2.58

* At Producing Mill

‡ Delivered. b 1–5 tons, add 35c. Less than 1 ton, add 50c. c 20 tons or over base. e F.o.b. plant. f Includes delivery in free delivery zone. g 10,000 to 39,999 lbs. h List price. Dominion tax exempt. Provincial and Municipal tax extra. i Plus Dominion, provincial and Municipal sales tax. j Price per ton. k F.o.b. city. l Intermediate and hard grade, new billet. m Per sq. yd. n 5–10 tons. o 5 to 15 tons base. p Del. of 5000 sq. yd. or less. q Std. ribbed. 4 lb. per sq. yd. r 5 tons or over. s LCL. t Asphalt coated. u Note: Revised size extra—1 in., 1¼ in., 1½ in. 10¢, ¾ in., ⅞ in. 15¢, ½ in. 25¢, ⅜ in. 50¢, ¼ in. 80¢, ¼ in. $1.90. v Under 20 tons. Straight. w Copper bearing. x 2.5 lb. per sq. yd. y $0.0093 transportation tax included. z Copper alloy. aa Delivered truck to job. Contractor to do unloading. dd F.o.b. dock. ee F. o. b. cars. ff Carload lots. gg Including sales tax. hh 10,000–19,999 lbs. ii Rolled at Geneva mill. 400–3999 lbs. kk ¼" ribbed. ll 5 to 8 tons. mm 2% off for cash.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE Per net ton f.o.b. 6 in. to 24 in. a	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13–44T std. 8 in.	std. 12 in.	24 in.	36 in.	CLAY DRAIN TILE ASTM C4–24 Per 1,000 ft., carload lots, f.o.b. 6 in.	8 in.	CONCRETE SEWER PIPE Per ft., delivered; ASTMC 14–41 12 in.	24 in.
Atlanta	$89.50	$0.43	$0.67	$3.39	$7.00	$114.00	$140.00	$0.45	$2.00
Baltimore	93.86	.51	.98	3.95	10.00	220.00	341.00	.80	2.25
Birmingham	82.50	.40	.72	2.84	.	210.00‡	375.00‡	.90	2.50
Boston	97.46	.413uvz	.823duvy	3.60uvy	10.00uvy	173.40	267.60	1.45‡mq	3.60‡mq
Chicago	96.49	.51	1.00	4.25	13.25	150.00‡	270.00‡	.70	2.35
Cincinnati	94.90	.455	.8775	3.555	10.50	166.80‡	257.70‡	.60	2.25‡
Cleveland	97.13	.357z	.6885z	3.015z	8.405z	147.50	231.00	.65m	2.50m
Dallas	99.28	.365	.657	2.63	6.25	.....	.....	.49	1.80
Denver	104.36	.41dd	.71dd	2.98dd	...	.....	.....	.74dd	2.50dd
Detroit	92.13	.545	1.055	4.19	12.10	200.00m	310.00m	.65	2.50
Kansas City	98.41	.418m	.74m	.....	.....	215.00m	.....	.60l	2.00l
Los Angeles	111.06	.426	.927	4.532	11.298	193.00‡	324.60‡	.72	2.05ff
Minneapolis	91.86/100.67	.62mo	1.12mo	4.35m	.....	.....	.....	1.29A	3.67A
Montreal	90.00	.77s	1.35s	4.47s	7.23es	.....	.....	72.00yhaa	218.00yhaa
New Orleans	92.68	.453	.82	4.41	8.85*	235.00bb	412.00bb	.65	2.29
New York	92.80/97.50	.55	1.06	4.25	11.60	.....	.....	1.00	2.50
Philadelphia	90.47	.54	.99	4.08	10.28	235.00‡	300.00‡	1.25A	3.20A
Pittsburgh	97.76	.36m	70m	2.70m	6.625m	147.50	230.00	1.05A	2.50g
St. Louis	94.27	48	.92	3.80	9.00	.....	.....	1.15k	2.45Al
San Francisco	111.06	.55d	1.08d	4.68d	11.70d	195.00dl	325.00dl	.69	2.85
Seattle	112.95	.51b	.91b	.....	.....	150.00c	.....	.80ee	2.40ee

*WROUGHT STEEL PIPE (Full standard weight)

Mill	3½ to 6 in., Lap Weld: Black %	Galv. %	8 in., Lap Weld: Black %	Galv. %	3½ & 8 in., Butt Weld: Black %	Galv. %	Mill	3½ to 6 in., Lap Weld: Black %	Galv. %	8 in., Lap Weld: Black %	Galv. %	3½ & 8 in., Butt Weld: Black %	Galv. %
Lorain, Ohio	27.5a	24.5	43.0a	40.0	48.0	36.0	Sharon, Pa.	27.5a	24.5	43.0a	40.0	48.0	33.0
Aliquippa, Pa.	27.5a	24.5	43.0a	40.0	48.0	33.0	Wheatland, Pa.	27.5a	24.5	43.0a	40.0	48.0	33.0
Sparrows Pt., Md.	27.5a	24.5	43.0a	40.0	48.0	31.0	Elma, Pa.	27.5a	24.5	43.0ab	40.0ab	48.0b	33.0b
Benwood, W. Va.	27.5a	24.5	43.0a	40.0	48.0	33.0	Fontana, Calif.	27.5a	24.5	43.0ab	40.0ab	48.0b	33.0b
Youngstown, O.	27.5a	24.5	43.0a	40.0	48.0	33.0		27.5a	24.5	26.5ab	23.5ab	37.0b	22.0b
Indiana Harbor, Ind.	27.5a	24.5	43.0a	40.0	48.0	32.0		27.5a	24.5	31.0ab	28.0ab	37.0b	22.0b
					46.0	31.0				17.0ab	14.0ab	37.0b	22.0b

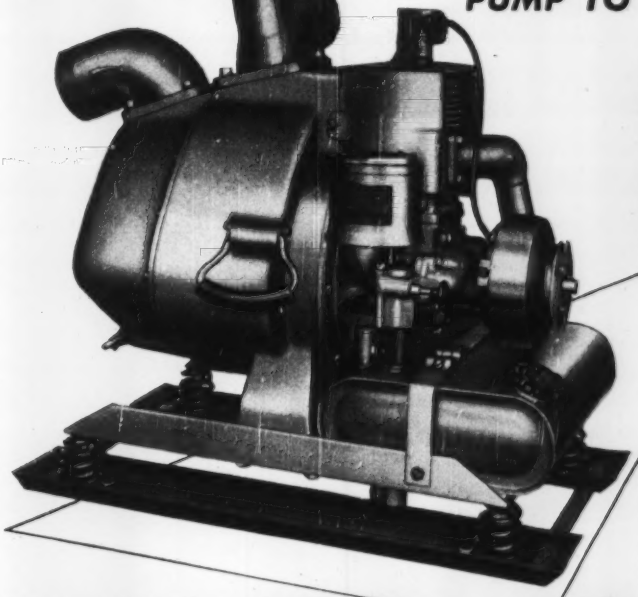
‡ Delivered. a B. & S. class B and heavier. CL, Burlington, N. J. (base) $87.50. Based on existing freight rates; subject to rate change. Gas pipe and class A, $5 per ton additional. 4 in., $5 per ton additional. 30 in. and larger, usually $1 per ton less. b Extra strength ASTM C 200-44T. c 4-in., $90. d SS361-A. e 30 in. g Culvert pipe. Reinforced, ASTM C76-41. h Reinforced. ASTM C75-41. i Reinforced. ASTM C76-37. j Centrispun. k Per 100 ft. l f.o.b. plant. m Truck delivery. o Listed price is based on LCL (no minimum). p Less than 5 tons, per price per ft. t Within switching limits. u ASTM C13-40. v F.o.b. city. x 2 ft. lengths. y 3 ft. lengths. z CESA A 40-1941 specifications used. aa No standard specification in Can. bb Freight allowed to destination in city. cc Truck loads; f.o.b. plant, Newton. dd LCL, delivered, f.o.b. truck. ee 1% off for cash. * Not stocked, only made to order. ff 21". a 3½ to 4 in. b Continuous weld. ‡Threaded and coupled.

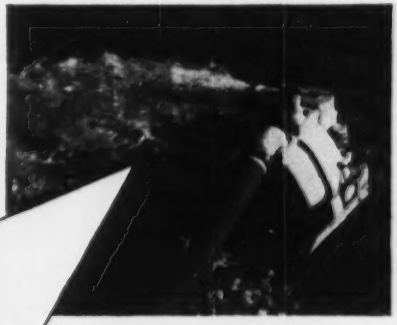
* WROUGHT STEEL PIPE: Discounts from standard list consumers carload prices. Base price approx. $200 per net ton. List prices per ft.: *Butt Weld:* ¼ in., 54¢; ⅜ in., 6¢; ½ in., 6¢; ¾ in., 6¢; 1 in., 8½¢; 1¼ in., 11½¢; 1½ in., 17¢; 2 in., 23¢; 2½ in., 27½¢; 3 in., 37¢; 3½ in., 58½¢.; 3 in., 76½¢. *Lap weld:* 3½ in., 92¢; 4 in., $1.09; 5 in., $1.48; 6 in., $1.92. Freight rates to destination to be added to price plus 3 percent tax on transportation.

WROUGHT IRON PIPE: List prices per ft. same as wrought steelpipe. Discount for Pittsburgh base. *Butt weld* — 1 in. and 1¼ in. black, +10.5, galv. +33.0; 1½ in. black, 4.5, galv. +29.5; 2 in. black, 4 galv. +29.0. *Lap weld* — 2½ in. to 3½ in. black + 11, galv. +32.5; 4½ in to 8 in black + 8, galv. +28.0. Freight rates to destination to be added to name delivered price.

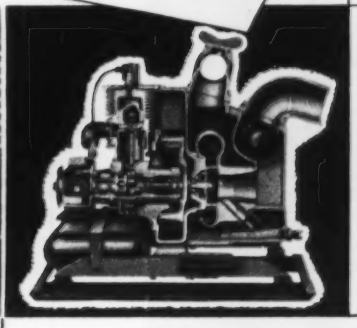
FOR 3 BIG REASONS

A HOMELITE CARRYABLE PUMP IS THE PUMP TO HAVE ON THE JOB





1. PERFORMANCE. Just add it all up . . . lightweight for easy handling, 15,000 gallons per hour, the fastest self-priming possible, a guaranteed 28 ft. suction lift, automatic seepage control, no trouble with clogging even when handling mud and solids . . . that's what you always get from a Homelite carryable gasoline-engine-driven pump that can be set up for operation easily and quickly anywhere.



2. DEPENDABILITY . . . continuous trouble-free performance . . . is the result of all the special features that Homelite engineers build into their pumps . . . replaceable abrasive-resistant wear plates, a simple five-part sealing device and impeller that require no grease, packing or attention and a non-clogging pump body directly attached with no bearings necessary, to the famous Homelite Gasoline Engine, the result of building over 275,000 gasoline-engine-driven units this past quarter century.

3. SERVICE. To keep Homelite pumps operating continuously, just as the day they were first delivered, a chain of exclusive Homelite service shops extend across the nation. These service stations are completely stocked and staffed by trained Homelite men who are ready to keep your Homelite pumps in top notch condition at all times.

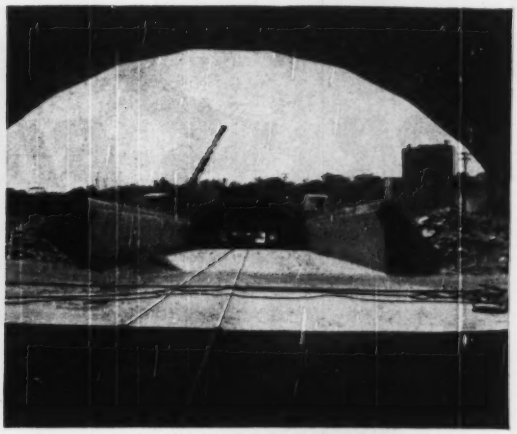
STICK TO THE RULE OF THREE 1. Performance 2. Dependability 3. Service, and you'll always stick to a Homelite.

PERFORMANCE DEPENDABILITY SERVICE

Homelite Corporation

1103 RIVERDALE AVENUE, PORT CHESTER, NEW YORK

• 40-ft. form was mounted on a flat car. 48 hours after each concrete pour, form was lowered and moved to next position.



• Track for gondolas was laid off-center to provide loading space for trucks.

• Storage capacity, 135,000 tons. Loading capacity, 14 railway gondolas and 30 trucks.

Mammoth tunnel completed before cold weather with . . .

LEHIGH EARLY STRENGTH CEMENT

Speed was important to the Kingston Trap Rock Company, Kingston, N. J.—owners and builders of this two-section tunnel. Early completion was necessary in order to stock pile aggregate for early Spring delivery. By using Lehigh Early Strength Cement, construction time for the arch was cut by one-half . . . two 40-ft. sections, instead of one, were poured per week.

When construction speed is necessary, let Lehigh Early Strength Cement help you save time and cut costs. It is doing this daily on widely diversified types of construction.

Whatever your construction requirements, there are Lehigh Cements to fit them. Our Service Department will be glad to help you with any specific problem.

Lehigh CEMENTS

LEHIGH PORTLAND CEMENT COMPANY

ALLENTOWN, PA. • CHICAGO, ILL. • SPOKANE, WASH.

LEHIGH PORTLAND CEMENT • LEHIGH EARLY STRENGTH CEMENT • LEHIGH AIR-ENTRAINING CEMENT • LEHIGH MORTAR CEMENT

LUMBER, TIMBER, PLYWOOD—PER M FT., B.M., CARLOAD LOTS F. O. B.

SHORT LEAF YELLOW PINE AND DOUGLAS FIR

All S. L. Y. P. is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face)
All Fir boards, dimension, planks No. 2, Fir small timbers and timbers are No. 1. Lengths up to 80 ft.
(Prices in italics)

	1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 S.4.S	6x12 S.4.S	12x12 S.4.S
Atlanta	† $70.00	$71.00	$60.00	$62.00	$65.00	$68.00	$70.00	.....	.....
Baltimore	68.00	69.00	60.00	60.00	60.00	65.00	82.00	.....	.....
	78.00g	*78.00g*	*74.50g*	*74.50g*	*74.50g*	*74.50g*	*76.00*	*$71.00*	*$71.00*
Birmingham	73.00	76.00	63.00	65.00	68.00	75.00	85.00	.....	.....
	65.00	*65.00*	*65.00*	*65.00*	*65.00*	*65.00*	*81.00*	*81.00*	*81.00*
Boston	86.00	86.91	91.00	91.00	91.00	96.00	.....	.....	.....
	91/98	*91/98*	*98/95*	*81/83*	*81/83*	*101/103*	*101/103*	*101/103*	*101/103*
Chicago	‡ 82/85	84/86	74/76	83/85	86/87	87/89	92.00	.....	.....
	‡ *86/88*	*90/91*	*88/89*	*88/89*	*90/91*	*90/91*	*92.00*	*96/97*	*96/97*
Cincinnati	80.00	82.00	80.00	80.00	82.00	85.00	93.95	.....	.....
	88.00	*90.00*	*88.00*	*88.00*	*95.00*	*97.00*	*98.00*	*98.00*	*98.00*
Cleveland	80.00	81.00	72.00	80.00	81.00	83.00	90.00	90.00	90.00
Dallas	† 54.00	60.00	60.00	53.00	56.00	57.00	90.00	.....	.....
Denver	*Not in stock*		*100.00*	*99.00*	*99.00*	*100.00*	*104.00*	*114.00*	*118.00*
Detroit	82.00	85.00	69.00	79.50	81.00	83.50	95.00	.....	.....
	78.50	*79.50*	*86.00*	*87.50*	*87.50*	*84.25*	*90.00*	*90.00*	*86/90*
Kansas City	100.00	100.00	105/117	105/112	110/115	117.00	.....	.....	.....
	# *90.00*	*90.00*	*98.00*	*95.00*	*95.00*	*97.00*	*115.00*	*130.00*	*130.00*
Los Angeles	* *85.00*	*85.00*	*85.00*	*85.00*	*85.00*	*85.00*	*95.00*	*110.00*	*95.00*
Minneapolis	‡# *100.00*	*100.00*	*100.00*	*100.00*	*100.00*	*100.00*	*120.00*	*120.00*	*120.00*
Montreal	ab 70.00	74.00	70.00	72.00	75.00	83.00	.....	.....	.....
	140.00	*140.00*	*140.00*	*140.00*	*140.00*	*140.00*	.....	*135.00*	.....
New Orleans	† 66.00	70.00	70.00	75.00	75.00	70.00	85.00	.....	.....
	† *68.70*	*68.70*	*71.00*	*75.00*	*72.50*	*72.50*	*87.00*	*87.00*	*100.00*
New York	‡ 92/97	95/100	87.50/92.50	90/95	95/100	97½/102½	115/125	.....	.....
	‡	.....	*Range from $95.00 to $100.00*				*97.50/105*	*105/120*	*105/120*
Philadelphia			**Range from $88.00 to $97.00**				88/97	.....	.....
			Range from $103.00 to $115.00				105/115	*105/115*	*105/115*
Pittsburgh	† 75/80	75/80	75/85	75/85	75/85	75/85	100.00	.....	.....
	† *90/100*	*90/100*	*90/100*	*90/100*	*90/100*	*100/110*	*120/130*	*120.00*	*120.00*
St. Louis	‡c 92.50	94.75	82.25/87.75‡	93.25‡	96.50/98.75	97.50c	.....	.....	.....
	‡c	.....	*99.25/102.5‡*	*102.00c*	*102.00c*	*102.00c*	*117.25c*	*119.25*	*119.25*
San Francisco	† *85.00*	*85.00*	*87.00*	*88.00*	*88.00*	*88.00*	*95.00*	*95.00*	*95.00*
Seattle	† *82.50g*	*82.50g*	*82.50g*	*82.50g*	*82.50g*	*82.50g*	*82.50g*	*82.50g*	*82.50g*

† F.o.b. mill. ‡ Delivered. c Retail-LCL. * Yard prices.

LUMBER: **Bold Face type, Southern Pine.** *Italics, Douglas Fir.* a Spruce b Tax exempt. c 5M lots. d 8-12 ft. lengths. e 8-16 ft. lengths. f 18 ft. or under. g No. 1 common. h 10-12 ft. lengths. i 8 ft. lengths. j 10-16 ft. lengths.

PLYWOOD: Special concrete form grade Fir Plywood, 4' by 8' panels, 5-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on ¾", $150.00; on ½", $177.00. For other centers add rail freight increment from table on proper size. Oiling and edge sealing charges included. a Lower rate by water shipment. b 50,000 lb. minimum.

LONG LEAF Y. P. Merchantable grade up to 20 ft.		PLYWOOD Rail freight increment* (See note for base price)	
2x12 S.4.S	12x12 S.4.S	¾"	¾"
.....	.....	$22.32	$27.24
$138.00	$134.00	22.86	27.90
.....	.....	.....	.....
115.00	125.00	21.78	26.58
.....	.....	.....	.....
114.00	114.00	22.86	27.90
.....	.....	.....	.....
116/118	116/118	18.72	22.80
.....	.....	.....	.....
.....	.....	21.78	26.58
.....	.....	.....	.....
83.00	90.00	18.72	22.80
.....	.....	13.92	16.98
95.00	.....	21.78	26.58
.....	.....	.....	.....
.....	.....	16.86	20.16
.....	.....	.....	.....
.....	.....	13.38ab	16.26ab
.....	.....	16.86	20.16
.....	.....	.....	.....
.....	.....	.....	.....
100.00	105.00	18.72	22.80
.....	.....	.....	.....
200/220/	200/220/	22.86	27.90
.....	.....	.....	.....
180.00	180.00	22.86	27.90
.....	.....	.....	.....
.....	.....	22.86	27.48
.....	.....	.....	.....
.....	.....	18.72	22.80
.....	.....	.....	.....
.....	.....	10.08a	12.36a
.....	.....	.....	.....

* Freight rate increase of 6¢ per cwt., not included in these figures.

GLASS, EXPLOSIVES, CHEMICALS

	WINDOW GLASS Discounts from jobbers list, Jan. 16, 1946a Single or Double Thickness A quality	B quality	EXPLOSIVES Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots*	
Atlanta	76%	76%	$0.2025	
Baltimore	66–10%	67–10%	.2025	
Birmingham	67%	67%	.1575	
Boston	60%i	60%i	.2025	
Chicago	65%	65%	.2025	
Cincinnati	66–10%e	66–10%e	.2025	
Cleveland	66–10–10–10%	66–10–10–10%	.2425	
Dallas	65%	65%	.215	
Denver	67%	67%	.2075	
Detroit	66–10–10%	66–10–10%	.2025	
Kansas City	65%e	65%e	.2075	
Los Angeles	58%	63%f	.21	
Minneapolis	64%	64%	.2075	
Montreal	40–5%bc	40–10–5%bc	18.50hi	
New Orleans	68%	68%	.2125	
New York	71%	72%	.32g	
Philadelphia	69%	70%	.2025	
Pittsburgh	70%	70%	.175	
St. Louis	70–10%	70–10%	.2075	
San Francisco	66%	73%	.2075	
Seattle	54%	55%	.21	

Price of 60% Ammonia Gelatin is $0.0125 per lb. higher than 40%

Glass: a Jobbers' list price per box, 14 x 20, ss, $20.75 for A quality, $18.00 for B quality; 14 x 20, ds, $30.75 for A quality, $26.00 for B quality. b Discount from list, Sept. 1939; sales tax included, but 6% tax exemption not allowable for. c Single thickness. e Discount from list of Aug. 15, 1938. f ss; ds—62%. i Double thickness 65%.

Explosives. * Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. g In borough of Kings, Queens, and Richmond and in Manhattan south of Canal St., add delivery charge of $9.00 per trip. h F.o.b. city per 100 lb. forcite, 40%. Forcite 60%, $19.90. i F.o.b. Beloeil (near Montreal).

40% Ammonia Gelatin price ranges in other than urban areas, per lb. (except Seismograph Grades)

	C/L 20,000 lb. net	Tons	200 lb. lots
E. of the Miss., except Fla. and Me.	$0.150	$0.1825	$0.2025
W. of Miss. to Rocky Mtn. States, Fla. and Maine	.16 – .1675	.1875–.20	.2075–.22
Rocky Mtn. States	.16 – .1725	.1875–.20	.2075–.225
Pacific N. W. States	.1575–.17	.19 – .2025	.21 – .2225
Pacific S. W. States	.155 – .1625	.1875–.195	.2075–.2175

PILES, TIES F. O. B.

PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

Dimensions	Points	Length	By Rail Pine*	By Rail Fir
12-in. at butt	6-in.	30 to 50-ft.	$0.43	.....
12-in.— 2-ft. from butt	6-in.	50 to 59-ft.	.46	.....
12-in.— 2-ft. from butt	6-in.	60 to 69-ft.	.50	.....
12-in.— 2-ft. from butt	6-in.	90 to 100-ft.	.....	.79
13-in.— 3-ft. from butt	5-in.	91 to 100-ft.	.....	.80
14-in.— 2-ft. from butt	6-in.	50 to 69-ft.	.50	.87
14-in.— 2-ft. from butt	6-in.	70 to 79-ft.	.54	.81
14-in.— 2-ft. from butt	5-in.	80 to 85-ft.	.67	.82
14-in.— 2-ft. from butt	5-in.	85 to 89-ft.	.....	.83
14-in.— 2-ft. from butt	5-in.	90 to 100-ft.	.....	.87

* Pine piling over 80-ft. available only in limited quantities.

RAILWAY TIES

Prices f.o.b. per tie for carload lots:		6"x8"x8' Untr.	6"x8"x8' Tr.	7"x9"x8'6" Untr.	7"x9"x8'6" Tr.
Boston	Oak	.....	.....	.....	.....
	Pine	.....	.....	.....	.....
New York	S. L. Sap Pine	$1.65	$2.85	$2.00	$3.30
	Mixed Oak	1.80	3.05	2.50	3.60
Birmingham	Hardwood	1.00	1.60a	.....	2.25a
Chicago	Red Oak	.....	2.50/2.60a	.....	3.52/3.45a
Los Angeles	Douglas Fir	.....	.....	.....	.....
	Redwood	.....	.....	.....	.....
Philadelphia	Red Oak	2.33	3.13a	3.10	4.25a
St. Louis	White Oak	2.65	.....	3.40	.....
	Red Oak	2.55	3.25a	3.35	4.10a
	Sap Pine or Cypress	3.15a	.....	4.00	.....
San Francisco	Douglas Fir	1.28a	2.24a/f	1.70h/	3.08a/
Montreal	Birch or Maple	....h	....h	....h	....h

Tr.— Treated; Untr.— Untreated. a Creosoted. b 7" x 9" x 8'. e Empty cell. e Green. f F.o.b. cars. h No constant price available. i Not available.

CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb.	$4.80
Chlorine cylinders, liquid, per lb. f.o.b. works	.07–.12
Calcium chloride, 77–80%, flaked, 100-lb. paper bag, f.o.b. works, ton	22.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb.	1.80
Soda ash, 58%, in paper bags, per 100 lb. dense	1.35
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	1.50
Sulphate of copper, in bags, 99% per 100 lb f.o.b. works	7.00

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION — SCORED Per M. lots of 2,000 pieces or over. 3x12x12 in.	4x12x12 in.	8x12x12 in.	STRUCTURAL CLAY TILE — LOAD BEARING — SCORED Per M. lots of 2,000 pieces or over. 8x12x12 in.	10x12x12 in.	12x12x12 in.	BRICK Per M. in quantity Common backing	Straight hard	LIME Per ton, In paper, Carload lot. Hydrated finishing	Common hydrated	Pulverized, or lump
Atlanta	.....	.....	.....	.....	.....	.....	$25.00	$25.00	$19.00	$17.50	$17.80
Baltimore	$175.00	$185.00	$325.00	$380.00	.....	.....	32.00k	35.00k	26.00	20.00	.....
Birmingham	97.50	104.00	195.00	231.00	.....	.....	20.00f	22.50qq	24.74	16.30	.....
Boston	140.00†	149.00†	280.00†	317.00†	.....	.....	32.00i	35.00i	30.80†	26.40†	.....
Chicago	115.00	122.50	230.00	.....	.....	.....	21.00	23.00	28.50	23.00	.....
Cincinnati	170.00j	180.00j	240.00jdd	295.00j	.....	.....	32.25j	44.00j	24.25j	24.25j	24.25
Cleveland	118.00ee	126.00ee	236.00ee	.....	.....	.....	28.50	28.50	24.00	22.00	27.50ss
Dallas	.....	110.00	.....	.....	.....	.....	18.75	33.25	31.90	21.80	.....
Denver	.....	.....	.....	.....	.....	.....	32.00	32.00	34.80bb	28.00bb	34.00bb
Detroit	116.06	124.40	233.25	.....	$289.65	$331.00	31.50ee	30.00ee	28.00	26.50	.....
Kansas City	115.50	122.50	.....	245.00	303.50	367.00	27.00o	27.00o	36.00p	32.00p	30.00p
Los Angeles	r	r	r	r	r	r	20.00§	.....	36.00	36.00	32.00
Minneapolis	158.00p	176.00p	330.00p	176.00up	.....	.....	30.00vp	34.00	35.00bbe	26.00bbe	35.00bbde
Montreal	115.00aq	125.00aq	255.00aq	.....	.....	.....	25.50	35.50	22.40u	..	22.40
New Orleans	160.00	160.00	300.00	.....	.....	.....	29.00	.....	38.00	26.00	37.50
New York	118.20h	126.00h	173.30eh	189.50hn	.....	.....	33.00	.....	34.40	26.80	.....
Philadelphia	126.30	134.80	252.60	302.74	361.33	455.74	27.00	30.00	31.00	19.50	24.50
Pittsburgh	98.00	105.80	181.85	207.30	265.35	303.60	26.00	38.00y	24.00	19.00	2.97m
St. Louis	120.00	135.00	252.00	252.00	339.00	.....	32.50al	30.50al	.60/.80aaap	.60aaap	1.00aaapee
San Francisco	132.00a	148.50a	198.00ddn	148.50an	.....	.....	33.00	.....	25.30	25.30	2.49m
Seattle	150.00ee	160.00ee	.....	160.00eeu	.....	.....	32.00a	39.00a	34.00ahh	34.00ahh	3.60mhh

† F.o.b. yard Roxbury. *a* Smooth. *b* Per 50 lb. bags. *c* 6 x 12 12 in.-3 cell. *d* Pulverized hot. *e* 5%, 10th following month. *g* 5½ x 8 x 12. *h* F.o.b. trucks, job site N.Y.C. *u* F.o.b. warehouse only. *j* Truck load or over. *k* $1.00 discount. *l* Red face. *m* Per bbl., 180 lb. *n* 7½ x 7½ x 12. Speed title. *o* F.o.b. Buffalo. *p* Truck lots. *q* Provincial and Municipal tax extra. *r* Not used because of earthquake danger. *s* 2% discount for cash. *t* 5½ x 8 x 11½. *u* Tax exempt. *v* Sand lime. *w* 5 x 8 x 12. *y* Stacked. *z* Pebble lime price per 80 lb. sack. *aa* Price per sack. Lime not sold per ton. *bb* LCL. *cc* Truck delivery. *dd* 6 x 12 x 12. *ee* Pebble lime. *ff* 80% common. *gg* Select. *hh* LCL. § F.o.b. plant. * All load-bearing, non-load-bearing no longer mf'd in Detroit.

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 600-lb. (Approx.) bbl. Dry *a*	WHITE LEAD Per 100 lb. in 100 lb cases In oil *w*	READY-MIXED PAINT Per gal., drums Graphite *b*	Aluminum *c*	Ferric Oxide *d*	ROOFING SUPPLIES Carload lots f.o.b. factory Rolls, slate surfaced, 85-90 lb per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 360 lb. bbl. per ton
Atlanta	$16.00	$26.375	$1.75	$2.70	$1.65	$2.06‡	$2.06‡	$2.06‡	$1.00‡	$36.00‡
Baltimore	15.75	26.00	2.10	4.27	2.90	2.96	3.94	3.94	.55	38.00
Birmingham	16.00	26.375	3.90	3.40	....	2.80	2.75	2.75	....	40.50ss
Boston	15.75	26.00	....	....	....	2.68h	....	2.67‡q	.36	34.00
Chicago	15.75	26.00	....	....	....	2.34‡u	2.54‡o	2.54‡o	34.00‡bb	37.00‡
Cincinnati	15.75	26.00	2.90	2.90	....	2.44‡	2.54‡o	2.54‡o	.35q‡	40.80‡
Cleveland	15.75	26.00	2.50pqq	2.75qq	2.35	2.32	2.41o	2.41o	.30y	32.00
Dallas	16.00	26.75	....	4.05	....	3.50q	3.75o	4.35o	.36	46.00
Denver	16.25	26.50	2.63	4.38	2.48	3.20o	2.20o	2.20o	.41ff	40.00
Detroit	15.75	26.00	2.40/2.50	3.00/3.40	2.40/2.50	2.20	2.29f	2.29	.397	35.00
Kansas City	15.75	26.12‡	....	....	....	....	....	....	....	....
Los Angeles	15.75	26.25	2.80	3.75	3.50	2.41	1.91e	1	.45	1
Minneapolis	15.75	26.125/28.55	....	....	....	2.20xd	2.29hdd	2.29hdd	.336dd	34.00r
Montreal	....	22.00	3.75t	4.20t	3.62t	3.25t	3.00tf	3.00tf	.79t	2.80kt
New York	15.75	26.00	3.45y	....	3.45	2.32	2.41o	2.41o	.34s	35.00
Philadelphia	15.75	26.00	3.25	3.65	3.15	2.54	2.94	2.94	.37	26.00
Pittsburgh	15.75	26.00	2.00	2.00	1.90	2.78	2.81o	2.81o	.37	38.00
St. Louis	15.75	26.00	....	....	....	2.20	2.42h	2.42h	.46	37.00
San Francisco	15.75	26.25	1.80	2.75n	1.35	2.27	3.30xa	....	.38o	.....
Seattle	15.75	26.50	2.67m	2.67m	..	3.23mqcc	3.24kmcc	....	.49mcc	48.25ymc

‡ Delivered. Note: Red lead in oil 50c higher than white lead in oil. *a* Red lead prices change frequently due to pig lead price changes. *b* U. S. War Dept. Spec. 3-49A. *c* ASTM Spec. D266-31. *d* 80% minimum ferric oxide. *e* 15 lb. *f* Per 432 sq. ft. *h* Per roll. 65 lb. *i* Net carload lot prices; Minneapolis and vicinity. *j* Asphalt pitch. *k* Per cwt. *l* Not used. *m* 1% discount for cash. *n* May, 1941 price. *o* Per 60-lb. *p* 6-drum. *q* Per 90-lb. roll. *r* F.o.b. factory Chicago. *s* ASTM Spec. D266-41. *t* Federal tax included. *u* Per 90 lb. square. *v* Per ton. *w* Price to large paint contractors is $1.25 less. *z* Mineral surfaced. *y* 55-gallon container. *z* Drums *aa* Approximate cost per 100 lbs. *bb* Roofers coating and cement. Price per ton. *cc* LCL, truck delivery. *dd* 2% cash discount. *ee* Asphalt, in 100 lb. package. *ff* 5-gal. drums. *gg* F.o.b. factory.

SKILLED AND COMMON WAGE RATES—PER HOUR

	Bricklayers	Carpenters	Struct. Iron Workers	Hoisting Engineers	Plasterers	Electrical Workers	Steamfitters	Common Labor— Building	Common Labor— Heavy Const.
Atlanta	$2.50	$1.85	$2.125	$2.00	$2.25	$2.25	$2.00	$0.90	$0.95
Baltimore	3.00	2.20d	2.55e	2.40/2.60	2.25	2.25	2.25	1.25	1.25
Birmingham	2.50	1.90	2.20	1.875	2.20	2.25	2.25	1.00	1.10
Boston	2.625	2.25	2.55	2.60	2.70	2.50	2.45	1.65	1.65
Chicago	2.55	2.45	2.50	2.45	2.55	2.525	2.45	1.80	1.80
Cincinnati	2.575	2.25	2.425	2.375	2.425	2.45	2.40	1.535	1.535
Cleveland	2.575	2.575f	2.575	2.575	2.525	2.525	2.575	1.85	1.725
Dallas	2.50†	2.125	2.25	2.25	2.50†	2.375	2.375	1.075	1.275/1.50
Denver	3.00	2.10	2.10	2.25	2.50	2.41	2.40	1.40	1.35
Detroit	2.625	2.325	2.575	2.575	2.625	2.60	2.50	1.675	1.675
Kansas City	2.60	2.15	2.30	2.375	2.75	2.425	2.50	1.575	1.575
Los Angeles	3.625	2.12	2.38	2.07	3.125	2.50	2.50	1.57	1.57
Minneapolis	2.40	2.12	2.275	2.07	2.50	2.35	2.32	1.52	1.52
New Orleans	2.50	1.875	2.25	2.125	2.175	2.30	2.25	1.025	1.025
New York	3.20i	2.75k	3.00	3.00	3.20g	3.00u	2.75k	1.70	1.70
Philadelphia	3.00	2.34/2.40	2.65	2.50	3.00	2.75/3.00	2.75	1.375	1.675
Pittsburgh	3.00	2.50	2.625	2.65	2.625	2.575	2.80	1.50	1.50
St. Louis	2.833c	2.45h	2.50	2.55	2.50	2.55c	2.50	1.60	1.50/1.75
San Francisco	3.06a	2.225	2.50	2.19	3.00	2.50	2.50	1.55	1.55
Seattle	3.00	2.195	2.395	2.33	2.495	2.395	2.50	1.795	1.83
Montreal*	1.40	1.25	1.25	1.20	1.40	1.35	1.55	.90	.80

a 6 hr. day. *b* 7 hr. day. *c* Incl. 3% vacation stamp fund for bricklayers; 2% for electricians. *d* 5¢/hr. reduction pending a new 2-yr. contract. *e* 10¢ reduction eff. until May 1, 1950, when an increase of 10¢/hr goes into effect.
* Cost of living bonus now included in basic wage. *f* Includes 5¢ per hr. tool replacement. † Plus $5.00 daily bonus. *h* $2.20 homes and housing + 5¢ vacation fund. *i* Incl. 2% welfare.

MEXICO CITY PRICES

In Pesos, F.o.b. City		Jan. '50	Feb. '50
Common Wages—Building (8 hr. day)	av. per hr.	.57	.57
Common Wages—Heavy Const. (8 hr. day)	av. per hr.	.75	.75
Skilled Labor Wages			
Carpenters (8 hr. day)	av. per hr.	1.25	1.25
Bricklayers (8 hr. day)	av. per hr.	1.25	1.25
Struct. Iron Workers (8 hr. day)	av. per hr.	1.50	1.50
Struct. Steel Shapes 3"-18" x 12 meters	per ton	1,050.00	1,050.00
Reinf. Steel, Corr. Rods			
⅜" x 11 meters	per ton	1,010.00	1,010.00
½" x 11 meters	per ton	1,000.00	1,000.00
⅝" x 11 meters	per ton	990.00	990.00
¾" x 11 meters	per ton	980.00	980.00
⅞" x 11 meters	per ton	980.00	980.00
1" x 11 meters	per ton	980.00	980.00
Gravel truck load of 3½ cu. meters			
Blue Gravel	per tr. load	30.00	30.00
Rose Gravel	per tr. load	32.00	33.00
Cement, Std. Port. (Tolteca)	per ton	115.00	115.00
Lumber			
Mex. Sacred Fir (Oyamel)	per M ft.	400.00	400.00
1st Class Pine	per M ft.	750.00	750.00
2nd Class Pine	per M ft.	480.00	480.00

ENR Skilled Average: (Bricklayers, Carpenters, Ironworkers) $2.469 **ENR Common Average:** $1.486

WIDE ROAD!

Fredrickson & Watson Laying 13-ft. Road at Plumas, Calif.

(above) Laying 11-ft. road in Indiana.

(below) Road widening and feathering into the road crown.

—Easy with the ADNUN

THE unusual flexibility of adjustment and the versatility of the Adnun makes it possible for you to handle a range of black top specifications any other Black Top Paver would find difficult.

Wide road beyond the width of the standard hopper is easy with the Cutter Bar Extension and Edger Plates. Hydraulic Controls and End Gates permit feeding material out beyond hopper. Roads up to 13 ft. have been laid successfully.

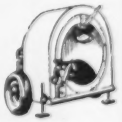
Cutter Bar adjustments permit laying any Crown or Bank and on shoulder widening the new shoulder can be feathered into the old crown. With hopper sections narrow strips can be laid between car lines or parallel to existing road for any degree of shoulder widening. Full control of the tilt of the Cutter Bar along with a Screed Heater assures the efficient handling of any type of mix. No other Black Top Paver gives you such range of control.

If you are figuring on a black top job you should have full details.

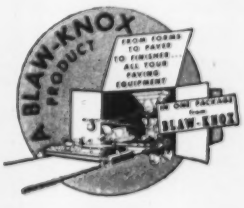
THE FOOTE COMPANY, INC.
Subsidiary of Blaw-Knox Co.
1922 State Street • Nunda, New York

If you pour concrete the Foote HighLift Boom will cut your pouring costs.

The Kinetic Asphalt Mixer saves money on patching and repair jobs.



ADNUN
TRADE MARK REGISTERED
BLACK TOP PAVER



CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager *J. A. MAHONEY, Reports* *M. R. ROESSLER, Statistics*

WATER SUPPLY

BIDS ASKED

N. Y., Rochester—B.A. 3/13—At office Fred W. Erath, purch. agt., City Hall, 20 S. Fitzhugh St., Zone 14, furnish, del. six 12-mgd. single stage centrifugal pumps direct connected to 600 hp., 3 P., 60 C., 2300 V. synchronous motors, and two 12-mgd., single stage centrifugal pumps connected to 600 hp., 3 P., 60 C., 2300-V synchronous motors with hydraulic couplings. Plans deposit $5; adv. ENR 3/2.

Va., Norfolk—B.A. 3/15—City. City Hall water purification plant near Moore's Bridge. CD 8/9.

SOON LETS CONTRACT

Pa., Chester—Scott Paper Co., Front and Main Sts., soon lets contract filter plant addn. Approx. $100,000.

LOW BIDDERS

Mo., St. Louis—City, c/o Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, 12 and Market Sts.,-Zone 3, Feb. 21, cleaning, repairing and lining with cement mortar approx. 26,930 lin. ft. 60 and 62 in. steel Transmission Water Conduit No. 1 between Howard Bend Water Works Plant on Missouri River and Station 270 plus 50 and two 48 in. steel pump discharge mains, approx. 720 lin. ft. Howard Bend Plant, St. Louis Co., from Centriline Corp., 140 Cedar St., New York, N. Y., $136,800, Est. $130,000. CD 1/31.

SEWERS, WASTE DISPOSAL

BIDS ASKED

N. J., Washington—B.A. 3/21—Boro. Boro Hall, sewage treatment plant exten. Bowe, Albertson & Assocs., 113 William St., New York, N. Y., engrs.

LOW BIDDERS

New York—President Queens Boro, 120-55 Queens Blvd., Kew Gardens, Zone 15, Feb. 16, sewers, 14, 21, 22, 24 Sts., etc. from Edgecliff Constr. Corp., 34-60, 32 St., Long Island City, $210,952; 63 Ave., 136, 138 Sts., 62 Rd., from Ralph Faccioli, 2245 E. 5 St., Brooklyn, Zone 23, $84,641. CD 2/8.

CONTRACTS AWARDED

Mo., Kirkwood (St. Louis P.O.)—City of Kirkwood, Wm. Mason, clk., City Hall, 39 S. Kirkwood Rd., Sugar Creek Sewage Disposal Plant 2, incl. equipment, auxiliaries, appurtenances, on Homan Tract near Highland Ave. and Daughtery Ferry Rd., to J. S. Alberici Constr. Co., 1550 Irving Ave., St. Louis, Zone 20, $171,883. Bids 29. CD 1/16.

Mo., Sedalia—City, c/o J. M. Bailey, clk., City Hall. Contr. 8, Storm Sewer No. 21 to R. J. Hastings & J. L. Stiers, 4903 Delmar St., St. Louis, Zone 8, $139,415. CD 12/1/47.

Pa., Phila.—Dpt. P. Wks., City Hall Annex, sewers various locations Schedule A-2 and A-6, to Adam Leva, 145 W. Fern St., $50,783*** Schedule A-1 to Michael P. Ventresca, 6112 Ross St., $94,009*** Schedule B-1, to Sabatini & Co., 2315 Mifflin St., $63,861, Grand total $208,653. Bids 2/17. CD 2/9.

Tex., Houston—Fairworth Co., c/o M. McCulloch, 1932 North Blvd., sanitary and storm sewers near Bellaire, own forces. Approx. $50,000 and Approx. $55,000 respectively. CD 2/15.

Tex., Pasadena—C. O. Beeler Lumber Co., 2300 Pease St., Houston, sanitary and storm sewers to C. O. Beeler Co., 5047 Marietta St., Houston. Approx. $70,000 and Approx. $60,000 respectively. Henry L. Johnson, 5717 Kirby Dr., Houston, engr. CD 2/16.

BRIDGES

BIDS ASKED

▲ **Ill., Chicago**—B.A. 3/20—J. F. Ward, city purch. agt., City Hall, Zone 2, 4-leaf trunnion bascule bridge over south branch of Chicago River on West Congress Hy., substructure only (80-77-50-S), $2,000,000. Plans deposit $50. CD 5/24.

LOW BIDDERS

Ill., Chicago—Cook Co., County Bldg., Zone 2 Oct. 18 Edens Superhighway, grade separation over Chicago, North Shore & Milwaukee Electric Line and Chicago & North Western R.R. from Arcole Midwest Corp., 3225 Main St., Skokie, $577,330. CD 10/10.

STREETS AND ROADS

BIDS ASKED

New Jersey—B.A. 3/14—New Jersey Turnpike Auth., 65 Prospect St., Trenton.

Gloucester, Camden and Burlington Counties—Contrs. 7, 7A and 7B, grading, draining structure, in connection with constr. New Jersey Turnpike, Sect. 2, between Woodbury Heights and Hartford. Gannett Fleming Corddry & Carpenter, Inc., 600 N. 2 St., Harrisburg, Pa., and Old Barrington Airport, Barrington, engr.

Pennsylvania—B.A. 3/14—Pennsylvania Turnpike Comm., 11 N. 4 St., Harrisburg.

Allegheny Co.—grading, structures, drainage, paving 5.14 mi. Sec. 30D, western exten. of turnpike from point approx. 534 ft. west of L. R. 02225 easterly, 27,132 ft. to point approx. 200 ft. west of west track on B & O R.R. in Hampton Twp., Pine, Richland and Hampton Twps.

grading, structures, drainage and paving 3.89 mi. Sect. 30C, western exten. of turnpike from point at Butler-Allegheny Co. line easterly 20,530 ft. to point approx. 534 ft. west of R.R. 02225 Marshall and Pine Twps. Plans deptsit $10 each. R. B. Stone, c/o owner, ch. engr.

† **Oklahoma**—B.A. 3/21—U. S. Eng., P.O. Box 61, Tulsa, relocation Oklahoma State Hy. 99, Hulah Dam, Caney River, Inv. No. CIVENG—34-066-50-87. CD 2/15.

LOW BIDDERS

Idaho—State Hy. Comn., Boise, Feb. 17, reconditioning road bed, drainage structures, bit. surf. 10.002 mi. U. S. 20 from Caldwell East, Canyon Co., from Stanley & Ehlen, 2401 Main St., Boise, $139,959, est. $167,223; constr. roadbed, drainage structures, bit. surf. 4.181 mi. Idaho Central Hy., Elmore Co., from Quinn & Robbins Co., Inc., 703 S 16 St., Boise, $167,947, est. $160,140. CD 2/10.

CONTRACTS AWARDED

Pa., Phila.—Dpt. P. Wks., City Hall Annex, grading Schedules 3 and 4, various recreation centers, to James D. Morrissey, 9119 Frankford Ave., $87,256; grading, Schedule 1, various recreation centers, to Herbert J. Elkins, 7348 Malvern Ave., $94,859. Jack S. Steele Co., 1417 Sansom St., engr.

Tex., Pasadena—C. O. Beeler Lumber Co., 2300 Pease St., Houston, c. conc. paving, to C. O. Beeler Co., 5047 Marietta St., Houston. Approx. $100,000. Henry L. Johnson, 717 Kirby Dr., Houston, engr. CD 2/16.

EARTHWORK, WATERWAYS

BIDS ASKED

▲ **Pa., Phila.**—B.A. 3/17—Dpt. P. Wks., T. Buckley, dir., City Hall Annex. Schedule A, Frankford Creek Flood Control Proj., Part A, Contr. No. M. 107, rein.-con. chute 60 ft. wide, 10 ft. deep, by 2,516 ft. long and rigid frame concrete bridge; Part B, Contr. No. M. 108 rein.-con enclosed conduit 65x 580 ft. long; Part C, Contr. No. M. 109, plain concrete gravity wall channel approx. 1,472 ft. long with earth invert and riprapped side slopes. CD 9/26/46.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $28,000; other public works $50,000; industrial buildings $68,000; other buildings $250,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

LOW BIDDERS

† **Louisiana**—U. S. Eng., foot of Prytania St., Feb. 15, approx. 1,650 lin. ft. pile dike constr., located on and adjacent to right descending bank of Red River Avoyelles Parish, about 2 mi. east of Echo, central to Mile 92.1(1938), CIVENG-16-047-50-209, from Kansas City Bridge Co., 71 By-Pass, Kansas City, Mo., $103,750. CD 1/31.

† **Louisiana**—U. S. Eng., foot of Prytania St., New Orleans, Zone 9, rejected bids Jan. 10, 2,300 cu. yd. concrete capping cast in place, pre-cast on portion of West Jetty at Southwest Pass, Mississippi River located between Miles 18 and 20 below the Head of Passes in Plaquemines Parish, approx. 115 mi. from New Orleans, CIVENG-16-047-50-144. LB $122,118. CD 1/17.

† **Texas**—U. S. Eng., 606 Santa Fe Bldg., Galveston, Feb. 14, reservoir clearing, Part 1, Denton Creek, Elm Fork of Trinity River, for Grapevine Dam, Tarrant Co., Inv. No. CIVENG-41-243-50-96, from Bill Curphy Co., 448 Insurance Exchange Bldg., Des Moines, Ia., $114,800. CD 1/26.

AIRPORTS

BIDS ASKED

† **Alaska, Anchorage**—HANGAR—B.A. 3/21—Fish and Wildlife Service, Dpt. of Interior, 3247 Interior Bldg., Wash. 25, D. C., airplane hangar and seaplane landing ramp, Inv. No. FW6-484. Extended date. CD 2/7.

CONTRACTS AWARDED

Tex., Houston—AIRPORT DRAINAGE—City, City Hall, 900 Brazos St., drainage facilities on north side of municipal airport, to Viking Constr. Co., 3014 Sumpter St., $881,818. CD 9/26.

LATIN AMERICA

Brazil, Paulo Afonso—Republic of Brazil, Rio de Janeiro, awarded contract 2 hydraulic turbines for hydroelectric project on the Sao Francisco River to Dominion Eng. Co. Ltd., 7 Notre Dam St., Lachine, Que., Canada, $700,000. CD 4/26/45.

Venezuela, Caracas—Tamanaco Hotel Corp., Senor Augusto San Roman, pres., and International Hotels, Wallace S. Whittaker, pres., Venezuela, awarded contract 10 story, 430 room hotel, incl. swimming pools, etc., to American Pacific Industrial Corp. of Venezuela, a wholly owned subsidiary of American Pacific Industrial Corp., 70 E. 45 St., New York, N. Y., U.S.A. Est. $6,000,000. Holabird, Root & Burgee, 41 E. 42 St., New York, N. Y. U.S.A., archts. in collaboration with Gustavo Guinand, Caracas, archt. CD 4/26/49.

PUBLIC BUILDINGS

BIDS ASKED

Ont., Owen Sound—HOUSING—B.A. 3/13—Owen Sound Housing Corp., City Hall, one, three or five apartments. Approx. $750,000. CD 2/2.

Mass., Brookline—SCHOOL—B.A. 3/14—Town, Roger B. Tyler, chn. School Bldg. Com., Brookline, 2 story, bsmnt., brick, steel Edith C. Baker School addn., alterations, Beverly Rd. Plans deposit $100. Kilham Hopkins Greeley & Brodie, 9 Arlington St., Boston, archts. CD 3/17.

† **Va., Little Creek**—INTELLIGENCE SCHOOL—B.A. 3/15—Pub. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Norfolk, Zone 11, altering bldgs. for Intelligence School at Naval Amphibious Base, NOY 20138, Spec. 23671. Plans deposit $10.

Tex., Houston—SCHOOL—B.A. 3/16—Houston Independent School Dist., 1600 Washington St., masonry Cage School addn., 1417 Telephone Rd., $250,000. Stayton Nunn, 2425 Ralph St., co-ord. archt. Finger & Rustay, 711 Natl. Standard Bldg., archts. CD 6/23/47.

† **Va., Fort Eustis**—FAMILY QUARTERS—B.A. 3/16—U. S. Eng., First and Douglas Sts. N. W., Wash. 25, D. C., converting to family quarters, Eng-49-080-50-13-(26).

Idaho, Rexburg—HOSPITAL—B.A. 3/20—Madison Co., Court House, 1 story, 200x200 ft. rein.-con. masonry, air conditioned hospital, $270,000. L. E. Stalker, Jennie Rogers Bldg., Idaho Falls, archt. CD 12/19.

Tex., Houston—HIGH SCHOOL—B.A. 3/23—Houston Independent School Dist., 1600 Washington St., John Marshall Junior High School addns., alterations, $250,000. Stayton Nunn, 2425 Ralph St., co-ord. archt. Theo. F. Keller & J. B. McGee, 931 M & M Bldg., archts. CD 2/23.

LOW BIDDERS

N. C., Raleigh—AGRONOMY—North Carolina State College, c/o J. G. Vann, asst. controller, Raleigh, Feb.

16, general contract 4 story, 1,089,500 cu. ft. agronomy bldg., from Southeastern Constr. Co., 205 E. Bland St., Charlotte, $647,926. CD 1/12.

SOON LETS CONTRACT

Neb., Bellevue—GENERATING STATION—Loup River Public Power Dist., Columbus, generating station substructure, to Bates & Rogers, 600 W. Jackson St., Chicago 6, Ill., $500,000. Awarded 2/13. CD 2/8.

Utah, Bountiful—HIGH SCHOOL—Davis County Bd. Educ., c/o John I. Hess, clk., Farmington, general contract, high school, to Chytraus Constr. Co., 43b So. 4th West St., Salt Lake City, $494,900. Ashton, Evans & Brazier, 24 So. West Temple St., Salt Lake City, archts. Bids 1/30.

COMMERCIAL BUILDINGS

SOON LETS CONTRACT

Ill., Downers Grove — RESIDENCES — Downers Grove Estates, 63 and Main Sts., soon lets contract 214 residences for veterans, $403,000, Ralph H. Burke, 20 N. Wacker Dr., Chicago, Zone 6, engr.

La., Baton Rouge—YOUTH CENTER—First Methodist Church, c/o A. Hays Town, archt., Masonic Bldg., soon lets contract youth center and church alterations, CD 5/24/44.

Mo., Valley Park—NOVIATE—Marykroll Noviate, c/o Foreign Mission Sisters of St. Dominic, Vance Rd., Valley Park, soon lets contract 3 and 4 story, brick, cut stone, granite, rein.-con. Noviate bldg. with 45x180 ft. North and 54x128 ft. West wings; 56x129 ft. chapel wing 1 story, 38x57 ft. laundry bldg. Carroll & Dean, 5473 Delmar St., St. Louis, Zone 12, archts. John P. Nix, 656 Rosedale St., St. Louis, Zone 12, structural engr. John D. Falvey, 316 N. 8 St., St. Louis, Zone 1, mechanical engr.

Tenn., Memphis—THEATER—Malco Theaters, Inc., c/o Bruggenman, Swain & Allen, archts., Gazette Bldg., Little Rock, soon lets contract crosstown theater, CD 1/3.

▲ **Wis., Milwaukee**—HIGH SCHOOL—Sisters of the Divine, 3516 W. Center St., Zone 10, soon lets contract 4 story, 65x240 ft., 64x148 ft., 36x115 ft. high school, $1,250,000. E. Brielmaier & Sons, 735 N. Water St., Zone 2, archts. CD 2/7.

LOW BIDDERS

Mo., St. Louis—CHURCH—St. Gabriel the Archangel Parish, Rev. Msgr. R. B. Schuler, pastor, 4710 Tamm Ave., Zone 2, Feb. 16, general contract bsmnt., tower, 133x150 ft., stone, concrete steel church, 2 story, bsmnt., 66x75 ft. rectory, from C. Rallo Contg. Co., Inc., 5000 Kemper Park, Zone 9, $519,532. CD 2/10.

SOON LETS CONTRACT

▲ **Del., New Castle**—RESIDENTIAL DEVELOPMENT—Gordy & Son, Inc., du Pont Hy., residential development, South Swanwyck, separate contracts, $3,700,000.

▲ **Ill., Evanston**—HOME—Alonzo Maher Aged Ladies Home, Hinman and Davis Sts., 7 story, concrete, brick home for elderly women, to R. C. Wiebolds Co., 2553 S. Blue Island, Chicago, Zone 8. Approx. $1,500,000. Awarded 2/16, Childs & Smith, 20 N. Wacker Dr., Chicago, Zone 6, archts.

La., Houma—SCHOOL—Roman Catholic Congregation of St. Francis de Salles Parish, c/o Bendernagel & Cazale, archts., Marlborough Gate, New Orleans, 3 story parochial school, to L. W. Eaton Co., Inc., P.O. Box 387, Baton Rouge, $598,900. Bids 2/2; awarded 2/20. CD 1/27.

Mass., Wakefield—HOUSING—Realty Constr. & Eng. Co., 53 State St., Boston, 1 and 2 story, 82 unit frame houses, Glen Meadow Park. Owner builds, $820,000.

Neb., Lincoln—DEPARTMENT STORE—Miller & Payne, 13 and O Sts., 5 story, 75x142 ft. department store, to W. J. Assenmacher, 625 N. 17 St.; plumbing, heating and ventilating, to Newberg & Bookstrom Plumbing & Heating Co., 2105 M St., Approx. $400,000. J. C. Penney Co., lessee. CD 1/23.

Pa., Elkins Park—APARTMENT—Owner, c/o James G. Ludwig, archt., 6403 Market St., Upper Darby, apartment development, Montgomery Ave. and High School Rd., separate contracts, $420,000.

Pa., Phila.—CHURCH—St. Helena's Roman Catholic Church, 6161 N. 5 St., church, (upper bldg.), to Joseph R. Farrell, Inc., 4424 Market St., $538,328. Bids 2/10. CD 1/31.

Tex., Houston—DWELLINGS—Home Owned Properties, Inc., Scanlan Bldg., 47 addnl. dwellings. Owner builds. Approx. $329,000. CD 2/10.

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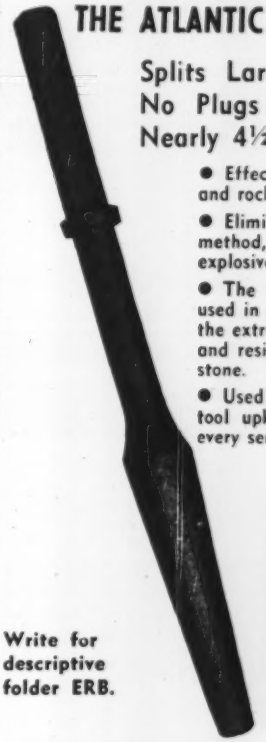

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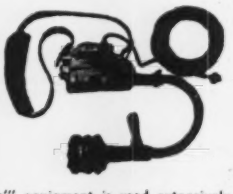

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Tex., Houston—DWELLINGS—Chalson Townsite Co., c/o College Pl. 11 Addn., Jef. Russell St., 32 dwellings. Owner builds. Approx. $275,000. CD 2/6.

Tex., Houston—DWELLINGS—Fairworth Co., c/o Malcolm McCulloch, 1932 North Blvd., 50 dwellings, near Bellaire. Owner builds. Approx. $375,000. CD 2/15.

Tex., Houston—DWELLINGS—H. H. Clark & Son, 1601 W. 14 St., 50 dwellings. Owner builds. Approx. $325,000. CD 1/27.

Tex., San Antonio—STORE and SUPERMARKET—Handy-Andy Community Stores, Inc., 801 N. Cherry St., addnl. store and supermarket to George E. Meyer, 1428 Division Ave. Approx. $250,000. CD 2/16.

Tex., San Antonio—SHOPPING CENTER—E. J. Burke & Sons, 4420 S. Zarzamora St., shopping center. Owner builds. Approx. $650,000. CD 1/26.

Tex., Taylor—HOUSING—John O. Baker Sr. and John Baker, Jr., Taylor, Negro housing, own forces, $250,000. CD 2/13.

INDUSTRIAL BUILDINGS

BIDS ASKED

Pa., Phila.—WAREHOUSE—Bids Asked—Atlantic Lumber & Builders Supply Co., 2918 Kensington Ave., warehouse and showroom. $150,000. I. W. Levin, 1531 Belmont Ave., archt.

SOON LETS CONTRACT

Ill., Chicago—FACTORY—W. C. Ritchie & Co., 8801 S. Baltimore St., soon lets contract 3 story, brick, rein.-con. Factory Bldg. 4. Shaw, Naess & Murphy, 80 E. Jackson Blvd., archts. CD 2/23.

▲ **Ont., Toronto**—WAREHOUSE—Mathers & Haldenby, archts., 15 St. Mary St., soon lets contract 6 story, 82x102 ft., rein.-con. warehouse adn., at Lansdowne Plant, Dupont and Lansdowne Sts., for Standard Sanitary & Dominion Radiator, Ltd., 1201 Dupont St. Approx. $700,000.

LOW BIDDERS

N. Y., Long Island City—POWER PLANT—National Sugar Refining Co., 2-03 55 Ave., will not construct power plant adn. Project abandoned. CD 10/27.

Tenn., Chattanooga—BUS TERMINAL—Owner, c/o Marr & Holman, archts., Stahlman Bldg., Nashville, bus terminal adn. from L. A. Warlick Contg. Co., Inc., 747 E. 11 St. $184,426. CD 2/9.

SOON LETS CONTRACT

Ill., Chicago—FACTORY—Webster-Chicago Corp., 5610 W. Bloomingdale St., Zone 39, 1 story, 20,000 sq. ft., rein.-con. brick factory, to Campbell-Lowrie-Lautermilch Corp., 400 W. Madison St., Zone 6, $100,000. Awarded 2/13. Shaw, Metz & Dolio, 208 S. LaSalle St., Zone 4, archts.

Ind., Decatur—POWER PLANT—Central Soya Mfg. Co., Decatur, 1 story bsmnt., 7,000 sq. ft. steam generating unit, 60 ft. high, power plant, to Indiana Eng. & Constr. Co., Ft. Wayne Bank Bldg., Ft. Wayne, $250,000. Awarded 2/14. CD 2/8.

Ind., Gary—BAKERY—Continental Baking Co., 1525 E. 53 St., Chicago, Ill., 2 story, 17,000 sq. ft., concrete bakery addn., 160 W. 10 St., to Fred C. Rowley & Sons, 4732 Calumet St., Hammond, $100,000. Awarded 2/10. CD 10/12.

Mo., Springfield—WAREHOUSE—C. E. Squires, 1400 S. Delaware St., rein.-con., brick warehouse, Washington Ave. and Phelps St., to Chapman & Bramer, 3284½ South St., $81,400, Johnson & Robinett, 1042 Landers Bldg., archts.

Pa., Phila.—LOADING PLATFORM—Edward G. Budd Mfg. Co., 2450 Hunting Park Ave., loading platform, to Wark & Co., 1700 Sansom St., $70,000.

Pa., Phila.—STORAGE—Hill-Chase & Co., Trenton Ave. and Ontario St., 1 story, 132x160 ft., steel, block storage bldg., to Lauter Constr. Co., Otis Bldg., $100,000. Howard Carter Hill, Otis Bldg., archt.

Pa., Phila.—WAREHOUSE—Penn Mutual Life Insurance Co., 6 and Walnut Sts., 1 story, no bsmnt., 180x624 ft., brick, block warehouse, Richmond and Westmoreland Sts., to Irwin & Leighton, 1505 Race St., $600,000. Miller Myers Co., 120 Market St., engr.

▲ **Wis., Sheboygan**—POWER PLANT—Wisconsin Power & Light Co., 430 N. 8 St., structural steel only, power plant, to Lakeside Bridge & Steel Co., 320 W. Villard St., Milwaukee, Total est. $7,000,000. Bids 2/27. CD 8/19/48.

UNCLASSIFIED

BIDS ASKED

† **Virginia**—GENERATOR MAIN LEADS, etc.—B.A. 3/21 U. S. Eng., foot of Front St., Norfolk, generator main leads and cubicles, Buggs Island Powerhouse, Roanoke River, Mecklenburg Co. Inv. Serial No. CIVENG-44-110-50-56. CD 8/3/44.

Tex., Snyder—OIL LINE GATHERING SYSTEM—Bids Asked—Gulf Oil Corp., Gulf Bldg., Houston, 33 mi. 10 and 8 in. crude oil line gathering sys. in Roscoe Area. $528,000. CD 2/16.

SOON LETS CONTRACT

Missouri—RURAL DISTRIBUTION LINES—Se-Ma-No Electric Co-operative, Mansfield, soon lets contract 217 mi. rural distr. lines, Douglas, Webster and Wright Counties, Proj. Mo. 67, Wright, H. B. Gieb & Assoc., 610 Woodruff Bldg., Springfield, engrs. CD 10/1/48.

LOW BIDDERS

† **California** — TRANSMISSION LINES — Bureau Reclamation, Dpt. Interior, Elverta, Feb. 16, Schedule 1, constr. foundations and erecting towers, from James H. McFarland, 101 Tara St., San Francisco, $263,391, est. $342,722; Schedule 2, stringing conductors and overhead ground wires for 42 mi. Shasta-Tracy Nos. 1 and 2 230-kv double-circuit transmission line, Madison-Rio Vista Sect., Central Valley Proj., Spec. 2883, from George E. Miller, 1345 Seabright Ave., Long Beach, $123,727, Est. $154,952. CD 1/25.

Tennessee—HOTEL, etc.—Div. Parks, State Office Bldg., Nashville, Feb. 15, hotel and restaurant facilities, at Montgomery Bell State Park, Dickson Co., from Cowan Lumber & Planing Mill Co., 1419 Clinton St., Nashville, $122,880. CD 2/8.

Tenn., Nashville—POULTRY UNIT—State of Tennessee, Nashville, rejected bids, poultry unit at A. & I. College. L.B. $76,900. CD 2/9, under LB.

CONTRACTS AWARDED

† **Fla., Green Cove Springs**—INACTIVATION OF FLOATING DRYDOCK—P. Wks. Officer, Charleston Naval Base, Charlestos, S. C., inactivation of floating drydock, to Laris Painting Co., Ambridge, Pa., $260,278. Bids 1/12. CD 1/19, under LB.

Ill., Lyons—RECREATION etc.—Lyons Bowling Alley, 7826 Ogden Ave., 1 story brick recreation and bowling alley to H. Kaplan Co., 2205 W. Roosevelt St., Chicago Zone 12, $265,000. W. Kirschbaum & Nathan Stagman, 53 W. Jackson St., Chicago, Zone 4, archts. CD 1/13.

Ind., Shelbyville—DRIVE-IN THEATRE—Robert D. Willcox, Bloomington, 600 car drive-in theatre on 12 acre tract State Rd. 29, 4 mi. east of here, separate contracts. $80,000.

Ind. Washington—DRIVE-IN THEATRE—M. Switow & Sons Enterprises, Inc., 651 S. 11 St., Louisville, Ky., 400 car drive-in theatre, Rte 50 east of here, to Selby Constr. Co., 13542 Detroit St., Cleveland, O., Approx. $60,000. CD 5/4.

Mass., Springfield—GRANDSTAND—Springfield Cubs, Inc., West St., concrete grandstand Pynchon Park, to Lay Constr. Co., 124 State St., $100,000, Westcott Eng. Co., 205 W. Walker St., Chicago, Ill., engr.

Tex., El Campo—SUBDIVISION DEVELOPMENT—Tom D. Henderson, El Campo, c. i. water lines, $33,000; sanitary sewers, Approx. $50,000 street constr., paving, Approx. $55,000, own forces. Grand total $138,000. CD 2/16.

Tex., Snyder—OIL PIPE LINE—Pasotex Oil Co., Snyder 22½ mi. 8 in. crude oil line, paralleling existing 6 in. line from pool to near China, force account Approx. $300,000. CD 2/16.

B. C., Lake Buntzen—TURBINE, etc.—British Columbia Electric Co., 425 Carrall St., Vancouver, 72,000 hp turbine, 84 in. valve and other auxiliary equip for program of modernization planned to Hydro-Electric Plant 1, to Vancouver Eng. Works Ltd., 419 W. 6 Ave., Vancouver, $500,000. Awarded 2/15. T. Ingledew, 425 Carrall St., Vancouver, engr.

PROPOSED PROJECTS

WATER SUPPLY

Colo., Baker Addn. (near Denver)—Baker Metropolitan Water & Sanitation Dist., c/o E. E. Fenimore, pres., 6604 N. Federal Blvd., Adams Co., water transmission and distr. mains, $148,886. Damon Runyon, Longmont, consult. engr.

▲ **Ind., Bloomington**—Mayor Tom Lemon, Bloomington, reservoir with 600 ft. dam on Bean Blossom Creek, about 5 mi. long to hold 5,200,000,000 gal. water, and to cover approx. 1,899 acres land partly in Monroe Co. and partly in Brown Co. $1,000,000. CD 3/2/48.

Mass., Bridgewater—Town, Bd. Selectmen, Town Hall, 7.6 mi. c.i. water main extens. $100,000. Howard E. Bailey, 6 Beacon St., Boston, consult. engr. CD 5/27/46.

N. C., Mantoe—Dare Beaches Sanitary Dist. Bd., c/o D. Meekins, chn. Bd. Dare Co. Comrs., water sys. for Dare County Beaches, Kitty Hawk, Hill Devil Hills, Nags Head, incl. 17 mi. mains, 89,000 ft. 6 and 12 in., pipe fitting, hydrants, 3 tanks, $650,000.

▲ **O., Salem**—City, East Cold Run surface water supply project, incl. large reservoir south of Salem near Guilford Lake, $1,350,000. Chester Engineers, 210 E. Park Way, Pittsburgh, Pa., consult. engrs. CD 6/30.

S. C. Charleston—Comr. Pub. Wks., 14 George St., WW tunnel between Foster and Goose Creeks, Charleston, Berkeley and Dorchester Counties, $300,000. Francis B. McDowell, Jr., c/o owner, engr. CD 3/1/43.

Tex., Channelview—Channelview Water Control & Imprvt. Dist., c/o Dr. Jno. T. Snyder, 118 Sheldon Rd., WW, $150,000. Garrett Eng. Co., 5008 Almeda St., Houston, consult. engrs.

▲ **Tex., Dallas**—City, City Hall, Main and Harwood Sts., 7 mi. 24 in. c.i. water main from water plant at Carrollton to Dallas city limits, $2,750,000. T. C. Forest, Praetorian Bldg., consult. engr.

Wash., Spanaway—Town, Town Hall, water sys. $314,000. H. P. Harstad & Assoc., Smith Tower, Seattle, Zone 4, consult. engrs. CD 2/16.

SEWERS, WASTE DISPOSAL

▲ **Calif., Menlo Park**—Menlo Park Sanitary Dist., Menlo Park, $1,000,000 bond election Mar. 28, sewage disposal plant and interceptor system.

O., **Cleveland**—City, City Hall, low level sewer for industrial waste on East side of Cuyahoga River,

$198,000; pump. station for sewer at Jennings Rd. and Big Creek, $83,000; intercepting sewers, north of Big Creek, $78,000; 3 pump. stations and sewers, one at Dille Rd. and other at Front St., $125,000. Mr. Richardson, c/o owner, engr. Sewer Design. CD 11/21.

Okla., Warr Acres—City, Orrin W. Gatlin, mayor, Warr Acres, sanitary sewer outfalls and treatment and disposal plant, $82,665; sewer laterals, $165,640; sanitary sewer mains, $71,500. Hudgins-Thompson, Ball & Assoc., 1100½ W. Main St., Oklahoma City, consult. engrs.

Tex., Carrizo Springs—City $100,000 bond election Mar. 4, sanitary sewerage sys. imprvs. incl. treatment plant alterations. The Marvin Turner Engineers, Nalle Bldg. Annex, Austin, consult engrs.

Tex., Channelview—Channelview Water Control & Imprvt. Dist., c/o Dr. Jno. T. Snyder, 118 Sheldon Rd., sanitary sewers, $125,000. Garrett Eng. Co., 5008 Almeda St., Houston, consult. engr.

Tex., Corpus Christi—City, sewage disposal plant, $700,000. Freese, Nichols & Turner, 2111 Natl. Standard Bldg., Houston, consult. engrs. CD 1/12.

Tex., Houston—Archer Development Co., Elect., Bldg., sanitary sewers, $70,000 and storm sewers, $60,000, 152 acre site for 711 homesites, east of Houston Rd. and to north of Halls Bayou to south of BSL&W Ry. E. S. Butler, 701 Polk St., consult. engr.

Tex., Marble Falls—City, R. O. Smith, mayor, Marble Falls, sewerage sys. incl. sewage collection and treatment plant, $217,150. Marvin C. Turner, Nalle Bldg. Annex, Austin, consult. engrs.

Tex., Mesquite—Dallas Co. Water Control & Imprvt. Dist. 8, Courthouse, Dallas, sanitary sewers, $65,000; storm sewers and open drainage, $60,000, near here.

▲ **Tex., Port Arthur**—City, 15 in. or more rein-con. pipe to box type storm sewers in all sections of city. $3,000,000. Smith & Norris, Harris Bldg., consult. engrs.

Wash., Kelso—City, City Hall, plans by DeWitt C. Griffin & Assoc., Lloyd Bldg., Seattle, Zone 1, sanitary sewerage sys. $800,240. CD 7/15.

▲ **Ont., Kingston**—City, sewerage sys. incl. filtration plant, storm sewers, mains, Approx. $3,317,000.

BRIDGES

▲ **N. Y., Buffalo**—City, City Hall, double leaf bascule type bridge Buffalo River, S. Park Ave. $1,205,000. CD 11/15/43.

▲ **Tex., Dallas**—Dallas Co., Courthouse, Wildwood Dr. Bridge and approaches, Elm Fork, $100,000; bridge, approaches throughout county, $1,343,250; Royal Lane Bridge, approaches, $75,000; California Crossing Road Bridge, approaches over Elm Fork, $75,000; Denton Road Bridge, approaches over Elm Fork Creek, $75,000. Koch & Fowler, Great Natl. Life Bldg., Dallas, consult. engrs. CD 1/27.

Tex., Houston—City, Buffalo Bayou Vehicle and pedestrian bridge, $450,000. L. Fugate, city engr. CD 7/31/46.

Quebec—Providence of Quebec, Quebec City,

Quebec Co.—bridge over River Berger at Pont Begin, Petite Riviere, $50,000.

Two Mountain Co.—bridge over River Rouge, St. Hermas, $125,000.

STREETS AND ROADS

Calif., Pasadena—City, imprv. Acacia St., Approx. $100,000. John H. Allin, city engr. CD 11/15/44.

Conn., Hartford—City, Royal W. Thompson, dir. P. Wks., Municipal Bldg., repaving Maple, Brown, White, Capitol, Charter Oak, Farmington, Albany, Main, Wethersfield, Retreat Sts. and wid'n. Seymour St., $188,000; rebuilding secondary streets, Pavilion, Wooster, Belleview, Sanford, Grove, Mechanic, Hamilton and Russ Sts., Flabush, Farmington and Capitol Aves., Park Terrace, $280,000. H. Irving Skilton, Municipal Bldg., 550 Main St., engr.

O., Cleveland—City, City Hall, relocate Dunham Rd. from south line Maple Heights to Tinker's Creek, $150,000. A. S. Porter, Standard Bldg., city engr.

Okla., Okmulgee—Okmulgee Co., Earl J. Street, chn. Bd. County Comrs. Dists. 1, 2 and 3, Okmulgee, Proj. 1, county road and bridge, incl. 9 mi. grading, draining, base course, double bit. surf. course and one bridge, $145,580. Sullivan & McGoodwin, Okmulgee, consult. engrs.

Tenn., Knoxville—Knox Co. Hy. Comn., Tim Lawson, ch. comr., Knoxville repair weather damage to 1,800 mi. county roads, $100,000. CD 3/5/45.

▲ **Tex., Dallas**—Dallas Co., Courthouse, grading, surfacing, drainage, etc. various roads, $1,000,000. Koch & Fowler, Great Natl. Life Bldg., Dallas, consult. engrs. CD 1/27.

▲ **Tex., Port Arthur**—City, approx. 125 mi. street paving, 6 in. stabil. base, 1½ in. hot-mix topping, $6,000,000. Smith & Norris, Harris Bldg., consult. engrs. M. D. Gates and H. H. Poole, c/o owner, engrs. CD 8/16.

Alaska, Ketchikan—City, City Hall, paving streets and sidewalks in downtown area, $520,000; grading 3 Ave. from Washington to Tongass, $190,000; fill Mill and Front Sts., $60,000. L. Hubbard, city engr. CD 12/2.

EARTHWORK, WATERWAYS

† **Fla., Key West**—Yards & Docks Annex, Navy Dpt., Arlington, Va., dredging the submarine basin, $739,000.

O., Cleveland—City, City Hall, parking space for boats at Edgewater Park and White City, $200,000.

▲† **Vermont**—U. S. Eng., Bldg. 21, Naval Drydock, South Boston, Mass., dam, flood control proj., Moose and Passumpsic Rivers, 3,000 acres reservoir, power project; construct new highway paralleling Route 114 which will be abandoned for 5 mi, $13,000,000. CD 1/28/49.

AIRPORTS

▲† **Fla., Eglin Field**—QUARTERS, etc.—U. S. Eng., Post Office Bldg., Mobile, Ala., family quarters, utilities and armament testing facilities at Eglin Field Air Force Base, $3,459,000.

▲† **Fla., MacDill Field**—QUARTERS, etc.—U. S. Eng., 575 Riverside Ave., Jacksonville, family quarters, utilities, fuel storage facilities and airfield paving, near Tampa, $4,412,000.

Fla., Panama City—STORAGE PLANT—U. S. Eng., Post Office Bldg., Mobile, Ala., constr. bulk storage plant for oil and fuel for Air Forces, $537,339.

† **Mich., Mount Clemens**—STORAGE FACILITIES—U. S. Eng., 520 Merchandise Mart, Chicago, Ill., fuel storage facilities and paving, Selfridge Field, $600,000.

▲† **Tex., Wichita Falls**—AIR BASE—U. S. Eng., 416 Wright Bldg., Tulsa, Okla., project abandoned air base enlargement of Shepherd Field, $2,000,000. CD 1/6.

LATIN AMERICA

Mexico, Gutierrez Zamora—Orlando Gaya Montini, Av. Libertad, 18, Gutierrez Zamora, Ver., plans vanilla extract factory, $200,000.

Mexico, Leon—Mexican Govt., Sria. de C. & O.P., Mexico, D.F., Mexico, plans airport modernization, $125,000.

PUBLIC BUILDINGS

Ala., Oxford—HIGH SCHOOL—Calhoun Co., plans by W. C. Douglas, 226 N. 14 St., Birmingham. Oxford High School. Approx. $250,000.

Ark., Harrison—HIGH SCHOOL—Harrison School Bd., Harrison, plans by Ginocchio & Cromwell, Hall Bldg., Little Rock, high school. Approx. $250,000. CD 10/11/45.

▲ **Calif., King City**—SCHOOL ADDNS.—King City Union School Dist., King City, defeated $1,129,000 bonds, high school addns.

Calif., Lompoc — SCHOOLS—Lompoc Elementary and High School Dist., $520,000 bond election Mar. 10, schools. Daniel, Mann & Johnson, 672 S. Lafayette Park Pl., Los Angeles, archts. CD 12/20.

▲ **Calif., Norwalk** — SCHOOL FACILITIES — Excelsior Union High School Dist., voted $1,500,000 bonds, school facilities. CD 1/18.

Calif., Yuba City — SCHOOL—Yuba City Elementary School Dist., Yuba City, $258,000 bond election Mar. 17, 10 room school.

Del., Wilmington—SCHOOL—Rose Hill-Minquadale School Dist. 47, c/o S. M. Stoufer, 2019 Franklin St., plans by E. William Martin, 830 West St., 3 classrooms at Minquadale School, and 10 classrooms Rose Hill, $380,000. Erwin Faller, 211 W. 14 St., mech. engr.

Idaho, Pocatello—SCHOOL—School Bd. plans by Paradise & Hunter, Pocatello, two 1 story schools, $300,000 each.

▲ **Ill., Chicago**—GARAGES—City, City Hall, Zone 2, 7 garages circling Chicago Loop District, $15,585,450. CD 6/11/45.

Ind., North Madison—HOSPITAL—State, P. Wks. & Supply Div., W. R. Mybeck, dir., 404 State House, Indianapolis, plans by McGuire & Shook, 1400-01 Fletcher Trust Bldg., Indianapolis, remodeling 2 story, U-shaped, brick, concrete, structural steel, patients dormitory State Hospital, $250,000. CD 2/4/46.

Ia., Waverly—SCHOOLS—Bd. Directors, voted $450,000 bonds Feb. 6, grade school and remodel school, $450,000.

Ia., West Des Moines—SCHOOL—Bd. Educ., $80,000 bond election Apr. 12, school, $287,000.

Ky., Pleasant Point—SCHOOL—Lincoln Co. Bd. Educ., Court House, Stanford, plans by John F. Wilson, 201 E. High St., Lexington, and Faster H. Phillips, Stanford, 2 story, 120x275 ft., part bsmnt., brick, concrete block, rural high school, $275,000.

Ky., Richmond—SCIENCE—Commonwealth of Ky., New State Office Bldg., Frankfort, plans by C. C. & S. K. Weber, 26 North Fort Thomas Ave., Fort Thomas, and J. D. Rieman, state engr., New State Office Bldg., Frankfort, science bldg. addn., Eastern State Teachers College, $250,000.

▲ **La., Monroe**—SCHOOL—Ouachita Parish School Bd., bond election Mar. 28, school renovations, extens. $5,200,000.

La., Rayville—SCHOOL—Rich and Parish School Bd., Rayville, bond election Apr. 18, Consolidated Negro School, $250,000.

Md., Crisfield—SCHOOL—Somerset Co. Bd. Educ., C. Allen Carlson, supt., Princess Anne, plans by Johanns & Murray, 8081 Georgia Ave., Silver Spring, 1 story, 56x154 ft. and 67x70 ft. cinder block, stone Ola High School addn. $325,000.

Mass., Attleboro—HOUSING—City of Attleboro Housing Auth., John Turner, chn., City Hall, 75 family unit housing, $700,000.

Mass., Chelsea—HOME—Commonwealth of Mass. Bd. Trustees, Soldiers Home, 51 Creet St., plans by Perry Shaw & Hepburn, 31 St. James Ave., Boston, brick, steel nurses home, Soldiers Home, $650,000.

Mass., Gardner—HOUSING—City of Gardner Housing Auth., City Hall, plans by Samuel Glaser Assoc., 105 Newberry St., Boston, 67 unit, frame housing, State-Aided Proj. Gardner 200-1. Bert and Waterford Sts., $650,000. CD 9/21/48.

Mass., New Bedford—SCHOOL—City, New Bedford Vocational School, 415 Ash St., plans by E. W. Poole, 688 Pleasant St., 1 story, 50x200 ft., brick, 2nd. floor addn., 2 story, bsmnt., 50x160 ft., brick school addn., Ash St. $425,000. CD 8/2/44.

▲ **Mich., Detroit**—CITY-COUNTY—Detroit-Wayne Co. Joint Bldg. Auth., c/o Harley-Ellington & Day, archts., 153 E. Elizabeth St., 10 story, 10,000,000 sq. ft. masonry, concrete city-county bldg. $15,000,000. CD 8/22/44.

Minn., Redwood Falls—HOSPITAL—City and Hospital Bd., voted $195,000 bonds, municipal hospital, $400,000. C. H. Buetow, 570 North Snelling Ave., St. Paul, archt. CD 1/19.

Mo., Kansas City—ARMORY—Kansas City Sub-district Organized Army Engineers Reserves, The Armory, 3620 Main St., Lt. Col. John P. Perlett, officer in charge. 2 story, 105x160 ft. armory; 52x128 ft. storage and garage bldg., 43 to 44 St., and Brooklyn St. to Wabash Ave. $368,264.

▲† **N. M., Los Alamos**—LABORATORY—U. S. Atomic Energy Comn., Los Alamos, 2 story, bsmnt., monolithic concrete, structural steel roof framing, laboratory, concrete slab and pier fdn., air-conditioning, Proj. D, TA-1. $10,000,000-$12,000,000.

N. Y., Freeport — SCHOOL—Bd. Educ., Union Free School Dist. 9, Freeport, 2 story 16-classroom school. $895,000.

▲ **N. Y., New Hartford** — HIGH SCHOOL—Central School Dist. 1, New Hartford and Paris, plans by Bice & Baird, Mayro Bldg., Utica, Junior-Senior High School, Oxford Rd. $1,635,000. CD 8/13/47.

N. Y., Penn Yan—LIGHT and POWER PLANT—Village of Penn Yan, electric light and power plant and altering existing plant. $480,230.

▲ **N. C., Monroe**—HOSPITAL—Bd. Comrs. Union Co., Monroe, voted $300,000 bonds, 100 bed Union County Hospital. Approx. $1,000,000. CD 12/30.

▲ **N. C., Monroe**—SCHOOLS—Bd. Comrs. Union Co., Monroe, defeated bonds, schools. $1,500,000. CD 12/30.

▲**O., Canton**—HIGH SCHOOL, etc.—Bd. Educ., high school, $3,000,000, new bldgs. and remodeling present bldgs. $4,234,949.

O., Cleveland Heights—SCHOOL—Bd. Educ., 1749 Lee Rd., plans by Garfield, Harris, Robinson & Schafer, 1740 E. 12 St., Cleveland, enlarge Belvoir School. $400,000. CD 11/23.

▲ **O., Lancaster**—SCHOOLS—Bd. Educ., $1,000,000 bond election in November, Junior High School, West Side School, auditorium-gymnasium combinations at North School and Cedar Heights.

O., Lorain—SCHOOL—Bd. Educ., Roland Horn, pres., school, Southeast Section; school on East Side; and school on West Side south of Lakeview Park, $650,000.

O., Maple Heights—SCHOOL—Bd. Educ., Lee and Broadway, plans by Outcalt, Guenther & Assoc., 13124 Shaker Square, Cleveland, 2nd wing on Maple Heights High School, Clement Dr. $450,000.

O., Warren—SCHOOL, etc.—Howland Twp. Bd. Educ., Warren, $580,000 bond election Mar. 14, elementary school, high school addn.

▲ **Okla., Stillwater**—ENGINEERING LABORATORY, etc. —Oklahoma A & M, c/o Dr. Henry G. Bennett, pres., Stillwater, engineering laboratory bldgs. $1,000,000; 3 and 4 story poultry industry bldg., $250,000; 3 story architectural bldg. $500,000; 4 story, approx. 49,000 sq. ft. masonry classrooms bldg. $500,000; 4 story, 67,000 sq. ft. masonry chemistry bldg. $750,000; warehouse and maintenance shop, $250,000; women's physical educ. facilities, incl. 2 corridor and tunnel connecting bldgs. one a swimming pool and other a gymnasium, $600,000; 3 story physics and mathematics bldg., $750,000. CD 8/13/45.

Pa., West Mifflin (P. O. Terrace)—SCHOOLS—Bd. Educ. of West Mifflin, Terrace, plans by Button & McLean, 119 E. Montgomery St., N. S. Pittsburgh, 2 story, brick Edison Junior High School, $650,000; 2 story, bsmnt., brick, tile Walnut Grove Grade School, $300,000.

S. D., Watertown—BOILER PLANT—City, boiler plant addn. $700,000. Ralph D. Thomas & Assoc., Inc., 400 Metropolitan Life Bldg., Minneapolis, Minn., consult. engrs.

▲ **Tenn., Chattanooga**—HOUSING—Chattanooga Housing Auth., c/o Selmon T. Franklin, archt., 421 Poplar St., 400 unit housing for whites. Approx. $1,000,000. CD 11/15.

▲**Tenn.,** Chattanooga—HOUSING—Chattanooga Housing Auth., c/o Hunt Caton & Assoc., archts., James Bldg., 400 unit housing for negroes. Approx. $1,000,000. CD 11/15.

Tenn., Kingsport—LIBRARY—City, c/o City Mgr., Kingsport, bond election Apr. 15, library, $340,000.

▲ **Tenn., Knoxville**—CANCER RESEARCH—State Bldg. Comn., State Capitol, Nashville, plans by Bauman & Bauman, 813½ Market St., cancer research hospital to be operated by University of Tennessee. $6,000,000.

Tex., Andrews — SCHOOL, etc. — Andrews Independent School Dist., Andrews, $400,000 bond election Feb. 24, gymnasium, vocational, classroom Junior High School addn. $250,000; school, $250,000. Guy Carlander, Box 3158, Amarillo, archt. CD 2/6.

Tex., Belton—SCHOOL—Belton Independent School Dist., Belton, plans by John Linn Scott, Nalle Bldg. Annex,

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Austin, masonry elementary school and school addn. $250,000.

Tex., Belton—HIGH SCHOOL—Belton Independent School Dist., Belton, plans by John Linn Scott, Nalle Bldg. Annex, Austin, Junior High School, Vocational Agricultural Shop, Bank bldg., $375,000.

Tex., Corpus Christi—HOSPITAL—Nueces Co., Courthouse, plans by Ben E. Christian, 921 Ocean Dr., and Roy L. Vogler, 225 Oleander St., tuberculosis hospital, $750,000. CD 11/17.

Tex., Dayton—HIGH SCHOOL—Dayton Independent School Dist., Dayton, voted bonds, high school and remodeling, $450,000. CD 2/6.

Tex., Edna—COURTHOUSE—Jackson Co., Edna, voted bonds, remodeling, enlarging courthouse, $625,000. Wyatt C. Hedrick, 5201 Fannin St., Houston, engr. and archt. CD 1/27.

Tex., El Paso—HOSPITAL—City and El Paso Co., El Paso, plans by Carroll & Daeuble, 1001 E. Yandell St., 30 bed masonry general hospital, $275,000.

▲ Tex., Galveston—COURTHOUSE, etc.—Galveston Co., Courthouse project abandoned, courthouse and jail, $1,500,000. CD 1/6.

Tex., Houston—SCHOOL—Houston Independent School Dist., 1600 Washington St., plans by Stayton Nunn, co-ord. archt., 2425 Ralph St., and Theo F. Keller & J. B. McGee, 931 M & M Bldg., masonry John Marshall Junior High School addns., alterations, $250,000. CD 6/23/47.

Tex., Junction—ADMINISTRATION, etc.—A & M College System, College Station, plans by Norton & Mayfield, Box 1169, Bryan, building units, incl. administration, mess hall, classrooms, permanent bases 42 tents, concrete block exterior, steel frames, etc. $250,000. CD 11/7/46.

▲ Va., Lexington—HOSPITAL—City plans by York & Sawyer, 101 Park Ave., New York, N. Y., hospital, $1,000,000.

W. Va., Moundsville—GYMNASIUM, etc.—Bd. Educ. Marshall Co., Moundsville, plans by Harry R. Nay, Fidelity Bldg., Chapline St., Wheeling, 1 story, bsmnt., 112x211 ft., concrete block, brick gymnasium and vocational bldg. addn. $250,000.

▲ Alaska, Ketchikan—HOUSING—Alaska Housing Auth., Juneau, 75 housing units, $1,000,000.

▲ Ont., Hamilton—VETERANS—Dpt. P. Wks., Hunter Bldg., Ottawa, plans by G. Brault, c/o owner, and Husband, Robertson & Wallace, 30 Hunter St. W., veterans bldg. Approx. $2,500,000. CD 3/24.

▲ Ont., Port Arthur—MENTAL HOSPITAL—Province of Ontario, Toronto, structural, steel, brick, stone, rein.-con. mental hospital, 3 central bldgs., boiler plant and laundry, $3,220,000. Dpt. P. Wks., Toronto, engr. CD 11/7.

Ont., St. Catherines—SCHOOL—Bd. Educ., St. Catherines, Senior Public School to replace Central School, $300,000.

▲ Ont., Toronto—OFFICE—Province of Ontario, Dpt. P. Wks., Toronto, plans by G. N. Williams, c/o owner, 6 story, bsmnt. concrete, stone office for Treasury Dept., on Queens Park Crescent, $2,300,000.

▲ Ont., Welland—COUNTY—Welland Co., A. J. Babiou, clk., plans by N. A. Kearns, 40 Main St. E., county bldg., $750,000; existing bldg. alterations, $360,000.

Que., Montreal—SCHOOL—Catholic School Comm., 117 St. Catherine St., W., school Parthenais St. for Parish of St. Francis Xavier, $350,000.

Que., Outremont—COMMUNITY HALL, etc.—Municipality, community hall and police station, $300,000. E. Lacroix, city engr.

COMMERCIAL BUILDINGS

Ala., Birmingham—CHURCH—First Lutheran Church c/o Charles H. McCauley, Jackson Bldg., church, Approx. $250,000.

Ala., Mobile—SEMINARY—New Orleans Province of the Society of Jesus, c/o Platt Roberts Co., archts., Government St., seminary on campus of Spring Hill College, $950,000. CD 2/20.

Ala., Mobile—SEMINARY—Owner, c/o Jesuit House of Studies, Building Fund, Pere Marquette Bldg., New

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Orleans, La., philosophy seminary on campus of Spring Hill College. $950,000.

Ark., Helena—HOTEL—Helena Hotel Corp., Helena, plans by Wittenberg, Delony & Davidson, Pyramid Bldg., Little Rock, 4 story, 63 room hotel. $400,000. CD 1/29/47.

Calif., Menlo Park—OFFICE—Sunset Magazine, 576 Sacramento St., San Francisco, office. $250,000.

▲ **Calif., San Mateo**—RESIDENCES—David D. Bohannon Organization 859 San Mateo Dr., 240 residences in Hillsdale 4A, 26 acres of Murray Ranch near 31 Ave. and Monterey St. in Western Hillsdale. $4,000,000.

Calif., Victorville—HOSPITAL—Apple Valley Hospital c/o Walker, Kalicnzes, Klingerman, archts., 488 S. San Vicente Blvd., Los Angeles, 53 bed 25,000 sq. ft. hospital in Apple Valley. Approx. $250,000.

Conn., Hartford—LIBRARY, etc.—Hartford Seminary Foundation, 55 Elizabeth St., plans by Collens, Willis & Beckonert, 20 Newbury St., Boston, Mass., brick, steel library and chapel Elizabeth St. $250,000.

Conn., New Britain—HOSPITAL UNIT—New Britain Memorial Hospital, Corbin Ave exten., brick, steel isolation hospital unit, Corbin Ave. exten. $255,000.

Fla., Miami—OFFICE—Professional Building, c/o Robert Law Weed & Assoc., archts., Dupont Bldg., office, Brickell Ave. Approx. $500,000.

Idaho, Boise—TELEPHONE—Mountain States Telephone & Telegraph Co., 713 Idaho St., plans by Hummel, Hummel & Jones, Sonna Bldg., 4 story telephone bldg. $700,000. CD 3/17.

Ill., Bloomington—HOSPITAL—St. Joseph's Hospital, Bloomington, hospital. $380,000.

▲ **Ill., Chicago**—DWELLINGS—United Packinghouse Workers of America, CIO, 608 S. Dearborn St., 1,000 dwellings, 47 St. and Cicero Ave., to be known as Landis Village. $10,000,000.

Ill., Chicago—HOSPITAL—Swedish Covenant Hospital, 5145 N. California St., hospital. $400,000.

▲ **Ill., Evanston**—STORE—Henry C. Lytton & Co., 701-13 Church St., plans by Shaw, Metz & Dolo, 208 S. La Salle St., Chicago, Zone 4, 2 story, steel, concrete, Pannon Stone Store. $1,000,000.

Ill., Peoria—HOSPITAL—St. Francis Hospital, 530 N. Glen Oak St., hospital. $250,000.

Ill., Quincy—HOSPITAL—Blessing Hospital, hospital, $620,000.

▲ **Ill., Rock Island**—HOSPITAL—St. Anthony's Hospital, Rock Island, hospital. $1,000,000.

Ky., Henderson—SCHOOL—Holy Name High School, Henderson, plans by Virgil Miller, 1037 Bayard Park Dr., Evansville, Ind., 2 story, 144x184 ft., brick, structural steel, concrete high school and gymnasium. $500,000.

La., New Orleans—HOSPITAL—Charity Hospital of New Orleans, 1532 Tulane Ave., plans by Feret & Wolf, 630 Gravier St., psychiatric unit on 3 floor, main bldg. $400,000.

▲ **Mass., Cambridge**—LABORATORY—Massachusetts Institute of Technology, 77 Massachusetts Ave., Boston, plans by Anderson & Beckwith, 11 Beacon St., Boston, 3 story biology and nutritional biochemistry, laboratory, Technical College Unit. $2,125,000. CD 1/4.

Mass., Dudley — SCHOOL-ADMINISTRATION — Nichols Junior College, Dudley, plans by J. D. Hulslander, 4 Walnut St., Worcester, 2 story, bsmnt., 55x110 ft., brick, steel, concrete school-administration bldg. $250,000.

Mass., Williamstown—LIBRARY—Williams College, Williamstown, plans by Cram & Ferguson, 248 Boylston St., Boston, brick, steel library addn. Approx. $250,000.

Mich., Flint—CHURCH—First Baptist Church, c/o Swanson & Assoc., archts., W. Long Lake Rd., Birmingham, 580 seating capacity, masonry, carpentry, structural steel church. $600,000.

▲ **N. J., East Orange**—HOSPITAL—East Orange General Hospital, Central and Munn Aves., plans by Vincent G. Kling, 917 Cerinthian Ave., Phila., Pa., hospital addn. $1,000,000. CD 1/14.

▲ **N. J., Englewood**—HOSPITAL—Englewood Hospital, 350 Engle St., 300 bed hospital addn. $3,000,000.

N. Y., Brooklyn—APARTMENT—Lanson Realty Corp., 16 Court St., Zone 2, plans by Kavy & Kavovitt, Inc., 44 Court St., Zone 2, 6 story apartment, 734-760 Rogers Ave. and 247-61 Linden Blvd. $828,000.

▲ **N. Y., Elmhurst**—APARTMENT—Elmhurst Gardens, Inc., c/o Kavy & Kavovitt, Inc., 44 Court St., Brooklyn, Zone 2, 6 story apartment, Mac Nish St. and Elmhurst Ave. $1,176,000.

▲ **N. Y., Flushing**—APARTMENT—Milton J. Kony, c/o Seelig & Finkelstein, archts., 153 Pierreport St., Brooklyn, Zone 2, 6 story apartment, 38 St. east of Parsons Blvd. $1,260,000.

▲ **N. Y., New York**—OFFICE, etc.—Beremed Realty Corp., 130 W. 42 St., New York, Zone 18, plans by Joseph Martine, 521 Fifth Ave., Zone 17, office, showroom and mfg bldg., 1029-1039 Avenue of Americas, between 38 and 39 Sts. $2,000,000.

N. Y., New York—APARTMENT—Hyed Realty Corp., c/o George G. Miller, archt., 67 W. 44 St., New York Zone 18, apartment, 2-4 Amsterdam Ave. and 503-505 W. 59 St. $550,000.

N. C., Charlotte—NURSES HOME—Presbyterian Hospital, 200 Hawthorne Ave., nurses home. $600,000.

O., Youngstown — CHURCH — David A. Endres, chn. trustees, First Presbyterian Church, Church and Main Sts., church. $500,000.

Okla., Oklahoma City—EDUCATIONAL—Trinity Baptist Church, 1329 N.W. 23 St., plans by Noftsger & Lawrence, 2756 N.W. 23 St., youth educational bldg. $300,000.

Pa., Erie—CLUB—Fraternal Order of Eagles, 140 W. 5 St., plans by Meyers & Krider, 407 Commerce Bldg., 2 story, bsmnt., steel, brick, block club. $250,000.

Pa., Pittsburgh—SCHOOL—Elizabeth Seton High School, 1900 Pioneer Ave., plans by E. J. Hergenroder, 800 Century Bldg., 2 story, 50x150 ft., brick private parachial school. $250,000.

▲ **Tenn., Nashville**—DINING HALL, etc.—Vanderbilt University, Nashville, plans by Francis B. Warfield & Assoc., Nashville Trust Bldg., mens dining hall and 2 dormitories. $2,000,000.

Tex., Alice—CHURCH—Immanuel Lutheran Church Congregation, Alice, plans by Travis Broesche, 5106 Crawford St., Houston, 1 story, bsmnt., 750 seating tile, limestone, concrete, church. $250,000.

▲ **Tex., Amarillo**—HOSPITAL—Northwest Texas Hospital, c/o C. F. Fielden Jr., admin., plans by Guy A. Carlander, Box 3158, 104 bed masonry hospital. $1,000,000.

▲ **Tex., Beaumont**—DWELLINGS—H. V. Howell, Beaumont, 172 dwellings $950,000; housing $600,000, both located on 45 acre tract named Summit Heights.

Tex., Bellaire—RESIDENTS—Krist Hubert, 6307 Washington St., Houston, 24 wood frame, cedar shake residences, concrete slab fdn., Palmetto Plaza Addn. $250,000.

▲ **Tex., Fort Worth**—DUPLEXES—Scenic Village, Inc., c/o Earl Moore, Oakhurst Scenic Dr., plans by John W. Floore, Insurance Bldg., 102 one story wood shingle or asbestos siding duplexes. $1,250,000. Carter & Burgess, 403 Century Bldg., consult. engrs.

Tex., Houston—DWELLINGS—Ayrshire Corp., 6825 Academy St., 50 addnl. dwellings, Sect. 7 Ayrshire Village. $750,000.

▲ **Tex., Houston**—DWELLINGS—W. Edward Brown, 3628 Lodge Lane, 125 dwellings, on portion 618 acre tract, Holmes and Griggs Rds. $1,000,000.

Tex., Houston—DWELLINGS—East End Development Co., c/o Earl Gregg, pres., 2620 Bissonet St., 100 dwellings on portion 618 acre tract, Holmes and Griggs Rds. $850,000.

▲ **Tex., Houston**—DWELLINGS—Pederson Realty Co. c/o Roy Pederson, 2046 Cortindt St., plans by J. R. Tabor & Assoc., Union Natl. Bank Bldg., 50 dwellings in area of Sunnyside addn. $325,000; 60 frame dwellings off 4500 block Chocolate Bayou Rd. $360,000; 40 frame dwellings, concrete post fdn. off Red Rd. $250,000; 50 frame dwellings, near Sims Bayou, $300,000; 50 dwellings, Sunnyside Addn. $350,000. Robert Atkinson, 1st. Natl. Bank Bldg., consult. engr.

▲ **Tex., Houston**—DWELLINGS—Pederson Realty Co., c/o Roy Pederson, 2046 Cortindt St., plans by J. R. Tabor & Assoc., Union Natl. Bank Bldg., 350 addnl. dwellings in Sunnyside Addn. $3,000,000. Rob Atkinson, 1 Natl. Bank Bldg., consult. engr.

Tex., Houston—EDUCATION YOUTH CENTER, etc.—St. Paul's Methodist Church, 5501 Main St., plans by Alfred C. Finn, Bankers Mortgage Bldg., educational and youth center, $350,000; chapel, $300,000; recreational bldg., church activities, $250,000. Robert J. Cummins & Reginald F. Taylor, Bankers Mortgage Bldg., consult. engrs. CD 2/10.

Tex., Park Cities—BUILDING—Young Mens Christian Assn., Ed. Sammons, chn. Bldg. Comm., 3802 University Blvd., plans by Geo. L. Dahl, 1920½ Main St., Dallas (1st unit) 2 story, bsmnt., masonry Y bldg., Preston Rd., at Normandy, $348,000; (2nd unit) gymnasium, locker room and 25x75 ft. rein.-con. swimming pool. $250,000. CD 8/17.

▲ **Tex., San Antonio**—APARTMENT-HOTEL—Ralph J. Grimsley & Assoc., c/o Burns Roensch Co., Frost Bank Bldg., plans by Walter W. Ahlschlager, 212 S. St. Paul St., Dallas, 2 to 5 story 120 unit apartment-hotel. $1,500,000. Burns Roensch Co., Frost Bank Bldg., consult. engr. CD 4/16.

▲ **Wash., Spokane**—APARTMENT—Henry George & Sons & J. L. Cooper, Hutton Bldg., plans by Whitehouse & Price, Hutton Bldg., 13 story apartment. Approx. $1,000,000.

Wis., Wisconsin Rapids—CHURCH—Sts. Peter & Paul Catholic Congregation, 1150 2 St. N., plans by A. F. Billmeyer & Son, 172 2 St. S., 1 story, bsmnt., 60x173 ft., steel, stone church. $300,000.

Newfoundland—CATHEDRAL—Roman Catholic Parish of Holy Reedemer, Rev. M. O'Reilly, Corner Brook, plans by McInnes & Walsh, 126 Newberry St., Boston, Mass., Cathedral $350,000.

Que., Montreal—OFFICE—Owner, c/o V. Rother, archt., 1426 W. Sherbrooke St., 6 story, concrete, steel, brick, some office. Peil St. $350,000.

Que., Montreal—CHURCH, etc.—Roman Catholic Parish of St. Barnabe, c/o Rev. Father A. Dubreuie, 1620 LaSalle Ave. plans by E. A. Doucat, 2245 E. Sherbrook St., church and presbytery, $300,000. CD 1/26.

Que., Prefontaine—SANATORIUM—Mount Sinai Sanatorium, Prefontaine, plans by M. M. Kalman, 1200 St. Alexander St., Montreal, 2 story, bsmnt., 39x107 ft., rein.-con. brick sanatorium, $250,000.

▲ **Que., Quebec City**—HOSPITAL—Bd. Governors, Jeffrey Hale Hospital, 4 St. Chyrille St., hospital to replace present Jeffrey Hale and McKenzie Wings. Approx. $2,000,000.

Que., St. Lambert—SCHOOL—Reverend Sisters of the Sacred Name of Jesus, 1240 Blvd. Mount Royal, Montreal, normal school, Tiffin Hill, $250,000.

INDUSTRIAL BUILDINGS

Ala., Anniston—FOUNDRY—Anniston Foundry Co., Anniston, plans by A. W. Nagel, c/o owner, foundry addn. Approx. $100,000. CD 1/30.

Ga., Macon—GARAGE, etc.—Bibb Transit Co., Macon, garage and office. Approx. $100,000.

Idaho, Boise—WAREHOUSE—Dependable Wholesale Grocery, Inc., 418 S. 9 St., plans by Hummel, Hummel & Jones, Sonna Bldg., 1 story, bsmnt., warehouse, $200,000.

▲ **Ind., Fort Wayne**—PLANT—International Harvester Co., 180 Michigan Ave., Chicago, Ill., engineering development plant. $6,500,000.

Miss., Durant—LAUNDRY, etc.—Central Laundry Co., c/o A. E. Branch, Durant, laundry and dry cleaning plant, $100,000.

▲ **Neb., Omaha**—PLANT—Omaha Public Power Co., 17 and Harney Sts., 45 thousand kw. main power plant exten. $3,5000,000. C. W. Minard, c/o owner, ch. engr. CD 2/28.

▲ **Okla., Elk City**—GENERATOR UNITS—Public Service Co. of Oklahoma, 600 S. Main St., Tulsa, two 6,000 kw. gas turbine generator units in power plant. $2,000,000. CD 6/10.

Tex., Corpus Christi—RECEIVING and SHIPPING—Lichtenstein's, 401 N. Chaparral St., plans by E. Dexter Hamon, 604 Medical Professional Bldg., 2 story masonry receiving and shipping bldg., incl. loading docks, concrete slab fdn. $100,000.

Tex., Dallas—PLANT—American Radiator & Standard Sanitary Corp., 1200 Jackson St., plans by Pettigrew-Worley & Co., engrs. and archts., 160 S. Avery St., 1 story, 60,000 sq. ft., masonry steel plant, partial air-conditioning containing warehouse unit, loading docks, concrete pier and beam fdn., in Trinity Industrial Dist., $500,000.

Tex., Houston—INDUSTRIAL—Harvey Wilson Drive Corp., c/o Raymond C. Loomis, 7651 Southern St., steel concrete industrial bldg., Harvey Wilson Dr. area, $75,000; six 40x78 ft. masonry, steel industrial bldg. units, adjacent National Steel Products Co. $120,000.

▲ **Tex., Orange**—PLANT—E. I. du Pont de Nemours & Co., Orange, nylon intermediates processing plant, at Sabine River Works. Approx. $5,000,000.

Tex., Paris—POWER PLANT—Lamar County Electric Co-operative Assn., Paris, power plant, $140,000. Freese & Nichols, 407 Danciger Bldg., Ft. Worth, consult. engrs.

Va., Holland—PLANT, etc.—Holland Peanut Co., Holland, rebuild plant and warehouse, $150,000.

Wash., Cashmere—PLANT, etc.—Cashmere Fruit Growers Union, Cashmere, 240x430 ft., concrete, frame, cold storage plant and warehouse. $700,000. Knowles & Callender Eng. Co., Jones Bldg., Seattle, consult. engrs. CD 9/23.

Ont., Hamilton—PLANT—Hamilton Spectator Ltd., 115 King St. E., plans by Husband, Robertson & Wallace, 30 Hunter St. W., 2 story plant addn. Approx. $150,000.

▲ **Ont., Windsor**—DEPOT—Ford Motor Co. of Canada Ltd., 2780 Sandwich St. E., parts depot in Sandwich East Twp., between Tecumseh Rd. East and Third Concession Rd. Approx. $4,000,000.

Que., Sherbrooke—CANNERY—Grafton Knight Corp., Sherbrooke, cannery. $300,000.

▲ **Que., Sorel**—PLANT—Canadian Celanese Ltd., Sorel, and 1401 McGill College Ave., Montreal, plant extension. Approx. $3,500,000.

UNCLASSIFIED

† **Fla., Ft. Lauderdale**—UTILITIES—U. S. Eng., 575 Riverside Ave., Jacksonville, buildings, utilities, facilities to establish advanced warfare school, $275,000.

Kentucky—RURAL DISTRIBUTION LINES—Kentucky Utilities Co., E. W. Brown, ch. engr., First National Bank Bldg., Lexington, 34 mi. 132,000 volt transmission line to connect to Ohio Power Co. line (Portsmouth-Trenton) with Maysville, Ky.; 32 mi. 69,000 volt transmission line from Maysville to Moorehead, connecting with Kentucky and West Virginia Power Co. system, substation at Maysville, Mason, Fleming and Rowan Counties. Approx. $500,000.

Mass., Brighton—SWIMMING POOL—Commonwealth of Mass., Metropolitan Dist. Comn., 20 Somerset St., Boston, plans by John M. Gray, 175 High St., Boston, rein.-con. swimming pool, incl. lockers, Nanatum Dist. $300,000.

Mass., Cambridge—SWIMMING POOL—Commonwealth of Mass., Metropolitan Dist. Comn., 20 Somerset St., Boston, plans by John M. Gray, 175 High St., Boston, rein.-con. swimming pool, Magazine Beach, $300,000.

Miss., Bay Springs—GAS SYSTEM—Town, voted bonds natural gas sys. $250,000.

▲ **New Mexico**—RURAL DISTRIBUTION LINES—Central New Mexico Electric Co-operative, Corona, 418 mi. rural distr. lines 31 mi. 34 kv transmission line, addnl. generating facilities and sys. imprvs., Lincoln Co. $1,560,000. CD 5/26.

▲ **New Mexico**—RURAL DISTRIBUTION LINES—Columbus Electric Co-operative, Columbus, 483 mi. rural distr. line, 35 mi. 69 kv. transmission line and system imprvs., Luna Co. $1,520,000.

South Dakota—RURAL DISTRIBUTION LINES—Black Hills Electric Co-operative, Custer, plans by D. O. Flahert, Rapid City, 47 mi. rural distr. lines, completing previously approved construction, 2 way radio, Custer Co. $155,000.

Wash., Seattle—AMPHITHEATRE—Park Dpt., 2314 4 Ave., Zone 1, amphitheatre in Seward Park. $500,000; necessary road changes $75,000. CD 4/9/45.

CONSTRUCTION REPORTS-Second Section

WATER SUPPLY

BIDS ASKED

Md., Hyattsville—B.A. 3/13—Washington Suburban Sanitary Comn., Hamilton St., Contr. 672-W, water distr. sys. imprv., incl. 39,480 ft. 24 and 30 in. water pipe, alternate bids, c.i. and concrete pipe, reinforced cylinder or prestressed, in Hyattsville, Bladensburg, Defense Heights, Wildercroft and Greenbelt. Plans deposit $5. CD 10/10.

†**New Mexico**—B.A. 3/16—Bureau Reclamation, Dpt. Interior, 211 U. S. Courthouse, El Paso, Tex., water sys. extens., imprvs., Elephant Butte Dam Govt. Camp, near Hot Springs. $35,000. Extended date. CD 1/25.

Conn., Hartford—B.A. 3/17—Bd. Contract & Supply of Metropolitan Dist., 115 Broad St., Contr. 164, furnishing reinforcing steel, R. Dillon, clk.; adv. ENR 3/2. CD 10/17/47.

N. Y., Poughkeepsie—B.A. 3/20—Bd. P. Wks., Poughkeepsie, construct control chamber and connections, rebuilding Slow Sand Filter 4. Plans deposit $10. Malcolm Pirnie Engineers, 25 W. 43 St., New York 18 N. Y., engrs.

O., Akron—Bids Asked—M. L. Davis, serv. dir., Akron, water mains for streets on Summit Hill, on Pontiac Ave. Exten., Thornton, 18, Wintner and 13 Sts., Longview, East and Hawkins Aves., Sunrise and Wiltshire Drs., Garman and Slosson Rds. $75,000. Wendell LaDue, city water supt.

Tex., Beaumont—Bids Asked—H. V. Howell, Beaumont, c. i. water lines, $40,000.

LOW BIDDERS

Ia., Dubuque—City, City Hall, rejected bids Jan. 25, water softening plant, LB. $649,100, Est. $710,000. CD 2/8.

SEWERS, WASTE DISPOSAL

BIDS ASKED

Ind., Monticello—B.A. 3/14—City, at office of E. E. Miller, clerk-treas., City Hall, Div. I, sewage treatment plant, Div. II, intercepting sewers, Plans deposit $50, Henry B. Steeg & Assoc., 2331 N. Meridian St., Indianapolis, Zone 8, engrs. CD 11/20/45.

La., Baton Rouge—B.A. 3/15—Council of East Baton Rouge Parish, Baton Rouge, sanitary sewerage sys. in Sewerage Dist. 15, Carnegie & Smith, 3000 A Dalrymple Dr., Zone 13, engr.

Miss., Macon—B.A. 3/15—City, City Hall, sanitary sewerage sys. imprvs. Plans deposit $20. Mallett & Assoc., 416½ E. Amite St., Jackson, engrs.

Minn., Onamia—B.A. 3/20—Village, W. A. Lipeszky, clk., sanitary sewer collection sys. and sewage tr. plant. Approx. $100,000. Plans deposit $10. Hitchcock & Estabrook, 521 Sexton Bldg., Minneapolis, engrs. CD 11/10.

Tex., Brackettville—B.A. 3/20—City, sanitary sewer collection sys. $200,000. Extended date. Alamo City Engineers, 3005 Transit Tower, San Antonio, engrs. CD 2/15.

Ala., Montgomery—B.A. 3/21—O. L. Skinner, city engr., City Hall, Contr. 1, installing sanitary sewer, outfall and lateral sewers to serve Highland Gardens and Chisholm areas. Plans deposit $20. J. M. Garrett & Son, 1105 Cleveland Ave., consult engr.; adv. ENR 3/2. CD 12/3/46.

Ia., Onawa—B.A. 3/21—City, City Hall, sewage plant, 1,000 ft. sanitary sewers, force main, lift station, $75,000, Buell & Winter, 1508 Insurance Exchange Bldg., Sioux City, engrs. CD 1/24.

La., Opelousas—B.A. 3/21—City Council, sewer mains, manholes, flush tanks, appurtenances, Sewer Dists. 5 and 6. Plans deposit $15. CD 6/21/45.

N. Y., Croton-on-Hudson—B.A. 3/21—Village, Municipal Bldg., sewage treatment plant. Bowe, Albertson & Assoc., 110 William St., New York, engrs. CD 2/3/44.

LOW BIDDERS

▲ **Conn., Fairfield**—Town, Sewer Comn., Town Hall, Feb. 23, sewage disposal plant, from Terminal Constr. Co., Woodbridge, N. J., $840,000; 1,300 ft. to beach and 3,500 ft. to sound outfall sewer, from Merritt-Chapman & Scott, 17 Battery Pl., New York, N. Y., $404,815. CD 1/12.

N. J., Phillipsburg—Town, Town Hall, Feb. 15, sewage disposal plant and main pump. station, from R. N. Luff Constr. Co., York and Welsh Rds., Willow Grove, Pa., $545,000. CD 1/10.

▲ **O., Cleveland**—B.A. 4/4—New York Central System, E. A. Dougherty, ch. engr., LaSalle Street Station, Chicago, Ill., reconstruction substructure and superstructure of the New York Central Big Four Bridge No. 4 over Cuyahoga River, 260 ft. span, single-track vertical lift bridge with column towers and tower bridge, fdns. rest on vertically driven H-beam piles. CD 2/20.

LOW BIDDERS

New Jersey—New Jersey Turnpike Auth., 65 Prospect St., Trenton, Feb. 21, Contr. 12, constr. 6 pairs concrete piers and two pairs abutments with necessary excav. cofferdams, fender system, etc. incl. 2,600 cu. yd. open foundation excav., 315,000 lb. steel bearing piles, 365,000 lb. reinforcing steel, for substructure dual turnpike bridge over Rahway River, Union Co., from Linde-Griffith Constr. Co., 152 Passaic St., Newark, $603,879. CD 2/7.

▲ **New Jersey**—New Jersey Turnpike Auth., Trenton, Feb. 24, Contr. 9, 9A and 9B constr. concrete piers and abutments for bridge over Rahway River between Carteret and Linden incl. 4,394,000 cu. yd. grading, 790,000 sq. yd. topsoiling 370,000 lbs. reinforcing steel, 24,800 ft. underdrains, 13,520 ft. concrete pipe culverts, 4,210 ft. corrugated metal pipe culverts, Mercer and Middlesex Counties, from The Grandview Co., 6 Grandview Ave., Mt. Vernon, N. Y., $2,716,065. CD 2/7.

CONTRACTS AWARDED

Pennsylvania—Pennsylvania Turnpike Comn., 11 N. 4 St., Harrisburg, construct substructure of Beaver River Bridge on Western exten. of Pennsylvania Turnpike, Sect. 29CD, approx ½ mi. east of Homewood, from point approx. 284 ft. west of centerline of West track of Pittsburgh & Lake Erie R. R. in Big Beaver Twp. easterly 1,545 ft. to point approx. 478 ft. east of the centerline of the East track of the Pennsylvania R. R. in North Sewickley Twp. approx. 0.292 mi. Beaver Co., to Dravo Constr. Corp., Neville Island, Pittsburgh, $597,490. Bids 2/7. CD 2/10, under LB.

▲ **Virginia**—Elizabeth River Tunnel Comn., Richmond, bridge tunnel link across Elizabeth River between Norfolk and Portsmouth, to Merritt-Chapman & Scott Corp., 17 Battery Pl., New York, N. Y., and Tidewater Constr. Corp., 538 Front St., Norfolk, $16,000,000. Total cost $30,000,000. Parsons, Brinckerhoff, Hall & Macdonald, 51 Broadway, New York 6, N. Y., engrs. CD 10/11/48.

STREETS AND ROADS

BIDS ASKED

STREETS AND ROADS
STATE HIGHWAY LETTINGS

March 13
Connecticut
March 14
Iowa
Maryland
Massachusetts
Ohio
South Carolina
Virginia
March 15
New York
March 16
Nevada
March 17
Illinois
Kansas
Kentucky
March 21
Kansas
March 22
California
Louisiana
March 23
California
March 24
Pennsylvania

† **Alaska**—B.A. 3/20—Alaska Road Comn., Federal and Territorial Bldg., Juneau, grading, surf. 49 mi. Sect. F, Richardson Hy. Approx. $50,000. Extended date. CD 2/24.

Calif., Los Angeles—B.A. 3/21—Bd. Supervs. Los Angeles Co., 501 Hall of Records, 17,500 lin. ft. imprv. Arrow Hy. and Bonita Ave, Azusa Canyon Rd. to Longden Ave., C.C. 0-651. Approx. $50,000. C. E. Arnold, co. engr. CD 9/19/45.

† **Oklahoma**—B.A. 3/23—U. S. Eng., P.O. Box 61, Tulsa, relocating Hy 99 across the Hulah Dam and Reservoir, Osage Co., CIVENG-34-066-50-87. Extended date. CD 2/27.

Tex., Beaumont—Bids Asked—H. V. Howell, Beaumont, street constr. and paving, on 45-acre tract named Summit Heights, $75,000.

Tex., Dallas—Bids Asked—Crown Constr. Co., 3302 Dutton Dr., rein.-con. paving, monolithic curbs and gutters, $60,000; Forrest & Cotton, Praetorian Bldg., engrs.

LOW BIDDERS

California—State Div. Hys., Sacramento, Feb. 23, grading, plant mix, surf. on existing pavement and concrete treated base 4.5 mi., constr. curbed central dividing strip, 2 rein.-con. bridges to form a 4 lane divided hy. between Port Chicago Rd. and Pittsburg, Contra Costa Co., from Parish Bros., Box 6, Benicia, $815,811. CD 1/30.

▲ **Ohio**—State Hy. Dpt., T. J. Kauer, Dir., Columbus, Zone 15, rejected bids Feb. 7, Type T-35, T-71 and 3 span structure, U. S. R. 127, Darke and Mercer Counties, $1,272,500***cancelled bids to have been opened Feb. 7, Type T-35 and structure, paving and widn. with c. conc. base, b. conc. surf. and construct continuous steel beam bridge with concrete deck, new concrete pier and concrete caps on existing abutments, S. R. 4, Crawford Co. CD 1/26.

▲ **Pennsylvania**—State Hy. & Bridge Auth., Harrisburg, Feb. 24, construct divided highway consisting two 24 ft. lanes of c. conc. on each side of variable width concrete arch divisor area incl. construction 1 rein.-con. structure, bit. surf. crushed stone base, 22 ft. and variable 20 to 24 ft. wide, grading, drainage, 72 ft. wide, one I-beam bridge and one rein.-con. bridge 10,765 ft. L. R. 769 (1-C); 46172 (1-C); 46140 (1-C) from north of Gulph Mills to point in Boro of West Conshohocken (a section of Schuylkill Expressway to link eastern terminal of extended turnpike to city of Phila.) one of five contracts, Montgomery Co., from S. J. Groves & Sons Co., P. O. Box 63, Downingtown, $1,331,465. CD 2/3.

CONTRACTS AWARDED

▲ **New Jersey**—New Jersey Turnpike Auth., 65 Prospect St., Trenton, Contr. 8, grading, drainage work, covering about 45 mi. Turnpike between Moorestown and Allentown and between Allentown and Raritan River incl. 3,783,400 cu. yd. excav. grading, 541,800 sq. yd. topsoiling, 20,800 lb. reinforcing steel, 18,150 ft. rein.-con., Burlington and Mercer Counties, and Contr. 11, grading, drainage work covering about 1¼ from Hackensack River to Wiregands Lane in Secaucus, incl. demolition of bldgs., sheds and other structures within right-of-way rock excav. stabilation of existing materials by use of vertical sand drains and constr. embankments, etc. in connection with grading, drainage incl. 186,000 cu. yd. clearing, grubbing, excav. earth rock, muck aggregating, 1,113,000 cu. yd. borrow excav., 56,000 ft. vertical sand drains, 1,030 ft. rein.-con. culvert pipe, Hudson Co., to George M. Brewster & Sons, 275 W. Fort Lee Rd., Bogota, $2,477,738 and $1,954,920 respectively. Bids 2/21, awarded 2/24. CD 2/24, under LB.

▲ **Pennsylvania**—State Hy Dpt., Harrisburg, 8.03 mi. three and four lane c. conc. pavement with 10 ft. shoulders, 15 small bridges, one 36 ft. rein.-con. bridge over Wild Cat Creek and 26 ft. rein.-con. bridge over Hunters Run, alignment to be improved and entire project elevated above 1936 flood level, U. S. 11 and 15, in Watts, Buffalo and Liverpool Twps., and Liverpool Boro, Perry Co., to John H. Swanger, Inc., Brennan Bldg., Lancaster, $1,999,024. Bids 2/17. CD 2/21, under LB.

EARTHWORK, WATERWAYS

BIDS ASKED

† **Arkansas and Mississippi**—B.A. 3/14—U. S. Eng., P. O. Box 97, Memphis, 1, Tenn., placement approx. 22,500 squares (area of 100 sq. ft.) of 5 in. uncompacted asph. pavement on previously graded banks of Mississippi River, Inv. Serial No. CIVENG-40-041-50-110.

† **Massachusetts**—B.A. 3/14—U. S. Eng., New England Div., Army Base, Boston, Zone 10, Menemsha Creek, Marthas Vineyard, CIVENG 19-016-50-44.

† **New York**—B.A. 3/14—U. S. Eng., 80 Lafayette St., New York, Zone 13, clearing, snagging Gordon and Kayaderosseras Creeks, Ballston Spa.

Louisiana—B.A. 3/15—Cameron Parish Police Jury, Cameron, approx. 7½ mi. dredge embankment, 7½ mi. excav. and embankment. Plans deposit $30. J. B. Converse & Co., Inc., Dallas and Lakeshore Sts., Port Arthur, Tex., engrs.

† **New York**—B.A. 3/15—U. S. Eng., 80 Lafayette St., New York, Zone 13, flood control project in Hoosic River, Hoosick Falls, Rensselaer Co., CIVENG-30-075-50-67. Plans deposit $10. Extended date. CD 1/23, under N. Y.; Hoosick Falls.

† **Rhode Island**—B. A. 3/15—U. S. Eng., U. S. Army, Army Base, Boston 10, Mass., imprvt. dredging by hydraulic process at Point Judith Pond, Washington Co., Serial No. CIVENG 19-016-50-35. Extended date. CD 1/11.

B. C., Prince Rupert—B.A. 3/15—Acting Secy. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., breakwater at Fairview Bay. Approx. $250,000. Plans deposit $25. R. Blais, c/o owners' engr.

† **Indiana**—B.A. 3/16—U. S. Eng., 830 West Broadway, Louisville 1, Ky., dam, spillway, service bridge and access road, Eagles Mill Reservoir, Mill Creek, CIVENG 15-029-50-63.

† **Maryland**—B.A. 3/16—U. S. Eng., 1 and Douglas Sts., N.W., Wash. 25, D. C., spillway and outlets, miscellaneous work, Savage River Dam Reservoir Proj., located on Savage River, Garrett Co., about 26 mi. S.W. of Cumberland, and 4½ mi. upstream of Bloomington. CIVENG-49-080-50-62. CD 2/7.

† **Massachusetts**—B. A. 3/16—U. S. Eng., New England Div., Army Base, Boston 10, dredging Fall River Harbor, Bristol Co., CIVENG 10-016-50-37. Extended date. CD 1/12.

† **South Dakota**—B.A. 3/16—Bureau Reclamation, Dpt. Interior, Lemmon, clearing part Shadehill reservoir site, Missouri River Basin Proj., Grand Div. Spec. R6-38 (Region 6). L. N. McClellan, Bldg. 1A, Denver Federal Center, Denver, Colo., ch. engr.

† **Texas**—B.A. About 3/17—U. S. Eng., 606 Santa Fe Bldg., Galveston, landscaping and cleanup Hords Creek Dam and Reservoir, central portion of Coleman Co. approx. 9 mi. west of Coleman, Inv. No. CIVENG-41-243-50-172.

† **Ohio**—B.A. About 3/23—U. S. Eng., Madison Ave. and 8 St. W., Huntington 18, W. Va., raising levee, levee protection works Bolivar Reservoir Proj., Magnolia. Serial No. CIVENG-42-022-50-83.

† **Florida**—B.A. 3/21—U. S. Eng., 575 Riverside Ave. Jacksonville, constr. Canal and Levee L-8, section of Central and Southern Florida Flood Control, about 17 mi. west of West Palm Beach in northeast edge of Everglades, immediately north of State Rd. 80 and West Palm Beach Canal. Inv. No. CIVENG-08-123-50-73. Plans deposit $10.

BRIDGES

BIDS ASKED

STATE HIGHWAY LETTINGS

March 13
Connecticut
March 14
Iowa
South Carolina
Ohio
Virginia
March 15
New York
March 17
Illinois
Kentucky
March 21
Washington
March 22
Louisiana
March 24
Pennsylvania

Louisiana—B.A. 3/21—Acadia Parish Police Jury, Crowley, approx. 145,000 cu. yd. channel excav.

Tex., Beaumont—Bids Asked—H. V. Howell, Beaumont, earthwork, grading in 45-acre plot, $35,000.

Tex., Dallas—Bids Asked—Crown Constr. Co., 3302 Dutton Dr., earthwork, ditching, levees. $30,000. Forrest & Cotton, Praetorian Bldg., engrs.

LOW BIDDERS

▲† **California**—Bureau Reclamation, Dpt. Interior, Friant Feb. 24, earthwork, pipe lines, structures, Friant-Kern Canal distr. sys. Central Valley Proj., near Delano, Spec. 2893. from United Concrete Pipe Corp., Box 425, Baldwin Park, $1,595,455. CD 2/15.

▲† **California**—U. S. Eng., 751 S. Figueroa St., Los Angeles. Feb. 28, flood control basin, spillway and east embankment Whittier Narrows, El Monte, Los Angeles Co. CIVENG-04-343-50-27, from Winston Bros. Co., 431 North Irwindale Ave., Azusa, $3,022,478. CD 2/3.

† **Pennsylvania**—U. S. Eng., P. O. Box 1715 24 and Maryland Ave., Baltimore, 3, Md., Feb. 15, constr. Williamsport Flood Protection Proj., Levee Unit 6, C. Williamsport, Lycoming Co., Serial No. CIVENG-18-020-50-19, from Lycoming Constr. Co., Williamsport, $936,469. Est. $1,400,000. CD 1/16.

CONTRACTS AWARDED

▲† **Arkansas**—U. S. Eng., 300 Broadway, Little Rock, supply 726,000 bbl. portland cement to Bull Shoals site, to Universal Atlas Cement Co., R. A. Long Bldg., Kansas City, Mo., $2,486,550.

▲† **Oklahoma**—U. S. Eng., P. O. Box 61, Tulsa, completion of earth embankment work for Tenkiller Ferry Dam, Muskogee Co., CIVENG-34-066-50-97, to W. E. Logan & Sons, Barnes Bldg., Muskogee, $1,734,015. Est. $2,071,778. Bids 2/17, Awarded 2/23. CD 2/24, under L8.

▲† **Washington**—Bureau Reclamation, Dpt. Interior, Ephrata, earthwork, concrete lining and structures, station 1410 plus 00 to station 2090 plus 75 East Low Canal and Weber Wasteway station 0 plus 00 to station 173 plus 65, Columbia basin Proj., near Moses Lake, Spec. 2879, to Western Constr. Corp., 400 Benson Bldg., Sioux City, Ia., $1,649,983. Bids 2/2, awarded 2/21. CD 2/9, under L8.

AIRPORTS

BIDS ASKED

▲ **Pa., Phila.**—TERMINAL—B.A. 3/15—Dpt. P. Wks., City Hall Annex, terminal bldg., International Airport, $4,000,000. Extended date. Carroll, Grisdale & Van Alen, 1616 Walnut St., archts. Airway Engineering Consultants, Inc., 1621 Connecticut Ave, N. W., Wash. D. C., engrs.

† **Va., Oceana**—STORAGE FACILITIES—B.A. 3/15—Pub. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Norfolk Zone 11, storage facilities for jet aircraft fuel at Naval Auxiliary Air Station, NOY 20191, Spec. No. 23714. Plans deposit $10.

† **Ariz., Yuma**—WATER DISTRIBUTION SYSTEM—B.A. 3/16—Bureau Reclamation, Dpt. Interior, Yuma, Ariz., revising water distr. sys. for Bureau Reclamation facilities, Yuma Air Field, near here, Spec. R3. LCRD-7 (Region 3). Gila Proj. L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver, Colo., ch. engr.

† **Wash., Whidbey Island**—PIER REPAIRS—B.A. 3/17—Officer in Charge of Construction, 13th Naval Dist., 1611 W. Wheeler St., Seattle main pier repairs at Naval Air Station, Specs. 22363. Plans deposit $10.

† **Calif., Point Mugu**—AIR BLAST FACILITY—B.A. 3/23—Yards & Docks Annex, Navy Dpt. Arlington, Va., air blast facility incl. 7 bldgs., power plant etc. at U. S. Naval Air Missile Test Center, Spec. 23667. Approx. $50,000. CD 7/23/48.

PUBLIC BUILDINGS

BIDS ASKED

N. Y., West Sand Lake—SCHOOL—B.A. 3/13—Bd. Educ. Central School Dist., Averill Park, school addn. Plans deposit $25. Harrison & Mero, Hall Rand Bldg., Troy, archts.

† **Va., Fort Story**—FAMILY QUARTERS—B.A. About 3/14—U. S. Eng., 1st and Douglas Sts. N. W., Wash. 25, D. C., converting 9 two story 63 man barracks and 4 single story 170 man mess halls to provide 48 family type quarters, Serial No. ENG-49-080-50-7. (12).

Ark., Hope—ARMORY—B.A. 3/14—Brig. Gen. Earl T. Ricks, adjutant General, Military Dpt., State of Arkansas, State Capitol, Little Rock, national guard armory, between W. 4 and W. 5 Sts. and between Washington and Fulton Sts. Plans deposit $25. Bruggeman, Swaim & Allen, 331 Gazette Bldg., Little Rock, archts.

Calif., Soledad—PRISON GROUP—B. A. 3/14—State Div. Architecture, P. Wks. Bldg., Sacramento general contract, electrical work, plumbing heating and ventilating work for main prison group addn. (Medium Security Group), incl. 6 rein.-con., steel frame interconnecting bldg. wings all 2 story except one which is 1 story, 67,000 sq. ft., and one green and lath house. Plans deposit $50. Anson Boyd Sacramento, state archt.

Conn., Newington—HIGH SCHOOL—B. A. 3/14—Town, Charles Sherwood, chn. School Bldg. Comn., Newington, 2 story, bsmnt., brick, steel high school, Cedar St. $900,000. Carl J. Maimfeldt & Assoc., 36 Pearl St., Hartford, archts. CD 7/21.

▲ **Conn., Norwalk**—HOUSING—B.A. 3/14—City of Norwalk Housing Auth., John Cavanaugh, acting chn., Washington Village, 140 family unit 2 story, brick veneer bldgs., MR-27 Scribner Ave. $1,120,000. Plans deposit $50. Extended date. Holden McLaughlin Assoc., 570 Lexington Ave., New York, N. Y., archts. CD 2/21.

Ga., Cedartown—HOUSING—B.A. 3/14—Cedartown Housing Auth., Cedartown, housing units, Approx. $250,00. Plans deposit $25. Cooper, Bond & Cooper, Henry Grady Bldg., Atlanta, archts. CD 11/28.

Mass., East Longmeadow—SCHOOL—B.A. 3/14—Town, H. A. Truel, supt. Schools, 2 story, bsmnt., brick, steel, concrete combined Junior High and Elementary School, Birchland Park. $700,000. Plans deposit $50. S. W. Haynes & Assoc., 336 Main St., Fitchburg, archts. CD 1/4/49.

N. Y., Astoria—HOUSES—B.A. 3/14—New York City Housing Auth., 63 Park Row, New York, Zone 7, 12 bldgs., Sect. 11, Astoria Houses. Plans deposit $75. Extended date. Harrison, Abramowitz & Wiggins, 45 Rockefeller Plaza, New York, Zone 20, archts. CD 1/23.

N. Y., New York—HOUSING, TOPSOIL, PLANTING—B.A. 3/14—New York City Housing Auth., 63 Park Row, Zone 7, topsoil and planting for Dyckman Houses (Proj. No. NYC-10) in area bounded by Dyckman St., Nagle Ave., W. 204 St., and 10 Ave. Plans deposit $25.

N. C., Charlotte—HIGH SCHOOL—B.A. 3/14—Bd. School Comrs., J. M. Dunlap, bus. mgr., City Hall, Myers Park High School, J. N. Pease & Co., 1194a E. 5 St., engrs. and archts. CD 12/1/48.

▲ **N. S., Cole Harbor**—HOSPITAL—B.A. 3/14—R. G. Hattie, clk., Halifax Co., Halifax Halifax County Hospital, Approx. $1,000,000. C. A. Fowler & Co., Capitol Bldg., Halifax, archts. CD 1/13.

Ill., Mundelein—SCHOOL—B.A. 3/15—Mundelein School Dist., 1 story school. $250,000. Perkins & Will, 309 W. Jackson St., Chicago, Zone 6, archts.

Ind., North Madison—HOSPITAL—B.A. 3/15—State, P. Wks. & Supply Div., W. R. Mybeck, dir., 414 State House, Indianapolis, 2 story, 40x230 ft., brick, structural steel, concrete patients dormitory addn. and remodeling, Madison State Hospital, $250,000. CD 2/21.

† **Kentucky**—DWELLINGS, etc.—B.A. 3/15—U. S. Eng., Madison Ave. and 8 St. *N.*, Huntington, W. Va., dwellings, utilities for Dewey Dam, Dewey Reservoir Proj., adjacent to and downstream of east abutment of Dewey Dam, Johns Creek at point approx. 5.4 mi. above confluence of Johns Creek and Levisa Fork of Big Sandy River, Floyd Co., approx. 5½ mi. N. W. of of Prestonsburg, and approx. 7 mi. S. E. of Paintsville, CIVENG 46-022-50-75. D. T. Johnson, distr. engr., CD 2/15.

Mass., Hingham—SCHOOL—B.A. 3/15—Town, Burton C. Mallory, chn. School Constr. Comn., 2 story, brick, steel, William L. Foster School, Crow Point Section, $350,000. Plans deposit $50. Edgar T. P. Walker, 131 State St., Boston, archt. CD 9/16.

O., Oxford—SCHOOL—B.A. 3/15—Bd. Educ., Robert Bogan, supt., Oxford, brick, concrete Stewart School addn. $300,000. David Maxfield, 322 E. Withrow Ave., archt. Hunt & Allen, 914 Main St., Cincinnati, assoc. archts. and engrs. CD 10/12.

Wis., Shorewood—GYMNASIUM, etc.—B.A. 3/15—School Dist. 4, 1701 E. Capitol Dr., Zone 11, 1 story, bsmnt., 110x140 ft., steel, brick, 11e stone gymnasium, recreational and youth center, concrete fdns. and floors, $400,000. Plans deposit $25. Grassold & Johnson, 734 N. Jefferson St., Milwaukee, Zone 2, archts. CD 2/27/48.

La., Monroe—WAREHOUSE, etc.—B.A. 3/16—City, City Hall, warehouse and office for Electrical, Water & Sewer Dpts. of City. Roy Johns, c/o Ford, Bacon & Davis Constr. Corp., 805 S. Grand St., archt.

† **Nebraska**—RESIDENCE, etc.—B.A. 3/16—Bureau Reclamation Dpt. Interior, Trenton, residence, combination garage and testing laboratory, water supply sys., gas supply sys. and sewage disposal sys. for Government Field Construction Facilities at Trenton Dam, Frenchman-Cambridge Div., Missouri River Basin Proj., Spec. R-7-111 (Region 7). L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver, Colo., ch. engr.

N. C., Windsor—HOSPITAL—B.A. 3/16—Bertie Memorial Hospital, W. R. Lawrence, chn. Bd. Trustees, Courthouse, 50 bed hospital, Proj. N.C. 44. Plans deposit $50 general, $25 each plumbing, heating, air-conditioning, ventilating, refrigeration, electrical work. George Watts Carr, 111 Corcoran St., Durham, archt. CD 5/2.

N. D., Fargo—BEEF and HOG BARNS—B.A. 3/16—Bd. Higher Educ., Bismarck, beef and hog barns at North Dakota Agricultural College, $260,000. CD 1/30.

Del., Millsboro—CLASSROOMS etc.—B.A. About 3/17—Millsboro School Dist. 23, Millsboro, classrooms, shop and gymnasium, $300,000. E. William Martin, 830 West St., archt. and Erwin Faller, 511 W. 14 St., engr. CD 10/19/49.

† **Kentucky**—B.A. On Or About 3/17—U. S. Eng., Huntington Dist., Madison Ave. and 8 St. W., Huntington 18, W. Va., two 1 story, masonry, dwellings and utilities for Dewey Dam, Dewey Reservoir Proj., adjacent to and downstream of east abutment of Dewey Dam, Johns Creek, at point approx. 5.4 mi. above confluence of Johns Creek and Levisa Fork of Big Sandy River, Floyd Co., approx. 5½ mi. N.W. of Prestonsburg, and approx. 7 mi. S.E. of Paintsville, CIVENG 46-022-50-75.

▲ **Conn., East Hartford**—HOUSING—B.A. 3/17—East Hartford Housing Auth., 70 Cannon Rd., 102 family

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units MR-36, Columbus, $1,075,000. Plans deposit $50. Kane & Fairchild, 49 Pearl St., Hartford, archts. CD 2/7.

Fla., Apopka—SCHOOL—B.A. 3/17—Orange Co. Bd. P. Instruction, Orlando, Senior High School. Richard Boone Rogers, Orlando, archts. CD 9/26.

▲ **Kan. Salina**—SCHOOL—B.A. 3/17—Bd. Educ., high school, $2,000,000. J. W. Radotinsky, 1401 Fairfax Trafficway, Kansas City, Kan., archt. CD 12/7.

† **Md., Baltimore**—POST OFFICE—B.A. 3/17—U. S. General Services Admin., 2 and Chestnut Sts., Phila., Pa., post office alterations. Approx. $25,000. Wm. A. Miller, Owner's Div. Engr. CD 11/2/45.

N. Y., New York—HOUSING TOPSOIL PLANTING—B.A. 3/17—New York City Housing Auth., 63 Park Row, Zone 7, top soil and planting for Gun Hill Houses (Proj. No. NYC-9) in area bounded by Holland Ave., Gun Hill Rd., White Plains Rd., Magenta St., Cruger Ave. and a line south of and parallel with Magenta St. in Bronx Boro. Plans deposit $25.

▲ **Tex., Lubbock**—BUILDINGS—B.A. 3/17—Texas Technological College, Lubbock, science, $700,000; administration bldg. wings, $300,000, Wyatt C. Hedrick, 1st Natl. Bank Bldg., Fort Worth, engr. and archt.; music hall, $475,000, Walsh & Hazelwood, Amarillo, archts.; engineering wings, $800,000, Atcheson & Atkinson, Lubbock, and Foster & Davis, El Paso, engrs. and archts. Extended date. CD 2/1.

Wis., Chippewa Falls—CITY HALL—B.A. 3/17—City, 2 story, bsmnt., 50x112 ft. and 30x114 ft., steel limestone, concrete block city hall, concrete fdns. and floors. Plans deposit $25. E. A. Stubenrauch 708 Erie Ave., Sheboygan, archt. CD 8/7/45.

La., Ruston—GYMNASIUM—B.A. 3/20—State Bd. Educ., Capitol Bld., Baton Rouge, gymnasium, campus of Louisiana Polytechnic Institute. $750,000. Plans deposit $100. Extended date. Smith & Padgett, 512-14 Ouachita Nat'l Bank Bldg., Monroe, archts. CD 12/16.

▲ **Mich., Detroit**—HOUSING—B.A. 3/20—Detroit Housing Auth., 409 Griswold St., 174 unit, masonry, concrete, dwellings, boiler house addn., Douglas Housing $1,500,000. Plans deposit $100, Harley, Ellington & Day, 153 E. Elizabeth St., archts. CD 7/31/44.

Ore., Tillamook — HIGH SCHOOL — B.A. 3/20 — School Dist. 9, Tillamook, 1 story, brick veneer, frame 500-student high school. $800,000. Plans deposit $50. Lee Thomas, Equitable Bldg., Portland, archt. CD 6/30.

Tex., Brownsville—SCHOOL—B.A. 3/20—Brownsville Independent School Dist., Brownsville, masonry school addns. $260,000. Plans deposit $15. Ellis F. Albaugh, 205 Watson Blvd., engr. CD 12/3.

† **Montana** — SUB-STATION — B.A. 3/21 — Bureau Reclamation, Dpt. Interior, Chester, constr. 30,000 kva Havre substation, located about 7 mi. southwest of Havre Spec. 2925. L. N. McClellan, Bldg. 44, Federal Center, Denver, Colo., ch. engr.

† **Alaska, Palmer**—HEADHOUSE, etc.—B.A. 3/21—Dpt. Agriculture, 14 St. and Independence Ave. S. W., Wash. 25, D. C., headhouse and greenhouse at Alaska Experiment Station, USDA No. 64-50. Plans deposit $10.

LOW BIDDERS

▲ **Calif., Camarillo**—HOSPITAL UNITS—State Div. Architecture, P. Wks. Bldg., Sacramento, Feb. 21, general contract 1 and 2 story, rein.-con. interconnected hospital Units F-16, F-17, F-18 and F-19 at Camarillo State Hospital, from Williams Burrows & Carl N. Swenson, Inc., 10 California Dr., Burlingame $1,017,700. CD 1/23.

▲ **Md., College Park**—CHEMISTRY CLASSROOM, etc.—Dpt. P. Imprvt., 506 Park Ave., Baltimore, Feb. 23, 1 story, structural frame, rein.-con. and cinder block chemistry classroom teaching and research laboratory bldg., air conditioning, from Geo. H. Hyman Constr. Co., 1010 Vermont Ave. N.W., Wash., D. C. $1,464,000. CD 2/21.

Mass., Cohasset—SCHOOL—Town Bd. Selectmen, School Dpt., Feb. 15, Junior and Senior High School, Pond St., from Wexler Constr. Co., 2 Elm Place, Brookline, $557,777. CD 1/17.

▲ **Mass., New Bedford**—HOUSING—City of New Bedford Housing Auth., Presidential Heights, New Bedford, Feb. 24, housing, Proj. 200-2, Rockdale Ave., Dartmouth and Matthew Sts. from Platt Constr. Co., Inc., 99 First St., Cambridge, $1,210,834. CD 1/31.

N. J., Atlantic City—HOUSING—Atlantic City Housing Auth., 2311 Fairmount Ave., Feb. 20, general contract 164 unit housing, Stanley Holmes Village, from John A. Johnson & Son, 270 41 St., Brooklyn, N. Y. $998,400. CD 2/1.

▲ **N. Y., New York**—SCHOOL—School Bldgs., Design & Construction, 49 Flatbush Ave. exten., Brooklyn, Zone 1, general contract, plumbing and drainage, heating and ventilating, electrical and lighting fixtures for P. S. 108, Madison Ave., between E. 108 and 109 Sts., from Caristo Constr. Co., 26 Court St., Brooklyn, Zone 2, $1,925,625. Bids 1/24. CD 12/29.

CONTRACTS AWARDED

▲ **Mich., Detroit**—SCHOOLS—Bd. Educ., 1354 Broadway, 3 story, 92x150 ft., masonry, rein.-con., structural steel Pershing High School addn., incl. 85x103 ft. gymnasium, and 2 story, 129x131 ft., vocational bldg., to Cunningham-Limp Co., 3087 W. Grand Blvd., $1,094,700. Bids 1/5, awarded 2/2. CD 1/24, under LB.

▲ **N. Y., Newark**—INFIRMARIES—Dpt. Mental Hygiene, Albany, Zone 2, general contract infirmary bldgs. at State School, to Lasker Goldman Corp., 161 Remsen St., Brooklyn, Zone 2, $2,547,000. Bids 1/18. CD 1/24, under LB.

▲ **N. Y., Thiells**—POWER HOUSE—Bureau Contracts & Accounts, Albany, general contract power house addn., Letchworth Village, to Gelco Builders, 180 E. 123 St., New York, $476,483; heating, to The Interboro Co., 235 E. 34 St., New York, $527,000. Bids 12/21. CD 12/30, under LB.

COMMERCIAL BUILDINGS

BIDS ASKED

Del., Wilmington—SYNAGOGUE, etc.—B.A. After 3/9—Congregation Beth Sholom, du Pont Bldg., synagogue and school, $300,000. Maurice Courtland, 2 W. 89 St., New York, N. Y., archt. DC 3/24.

Colo., Denver—HIGH SCHOOL—B.A. 3/14—Parish of Our Lady of Mount Carmel, 3549 Navajo St., 2 story 16 classroom high school, $350,000. Temple H. Buell & Co., 730 E. 14 St., archts. and engrs. CD 1/30.

Ga., Macon—DORMITORY—B.A. 3/14—Mercer University, Macon, 2 story with 3 story wing dormitory, W. Elliott Dunwoody Jr., Macon, archt.

O., Akron—HOUSING—B.A. 3/14—Ninth Naval Dist., Great Lakes, Ill., construct, manage and finance private rental housing for Naval establishments.

O., Columbus—MEDICAL—B.A. 3/14—J. F. Hardiman Co., Maysville, Ky., 4 story, 55x108 ft., brick, marble doctors medical bldg., Broad and Grant Sts., Tibbals-Crumley-Musson, 965 E. Broad St., archts. CD 1/17.

Ga., Waleska—ADMINISTRATION—B.A. About 3/15—Reinhardt College, Waleska, administration bldg. W. J. J. Cahse & Assoc., 140 Peachtree St. N.E., Atlanta, archts. CD 6/8/45.

Conn., Waterbury—BANK, etc.—B.A. 3/15—Waterbury Savings Bank, 60 N. Main St., (selected list bidders) brick, steel, marble, stone bank addn., alterations, N. Main St. $250,000. Thomas M. James Co. 101 Newberry St., Boston, Mass., archt. R. D. Kimball Co., 6 Beacon St., Boston, Mass., engr.

Mass., Brookline—NURSES HOME—B.A. 3/15—Beth Israel Hospital, 330 Brookline Ave., (selected list bidders) 4 story, bsmnt., 40x105 ft., concrete, brick, steel nurses home, Brookline Ave. $275,000. CD 1/26.

Mass., Worcester—Y.M.C.A. Bldg.—B.A. 3/15—Worcester Y.M.C.A., 766 Main St., 2 story, bsmnt., brick, stone, concrete, Y.M.C.A. branch, $275,000, Johnson & Rustigian, 390 Main St., archt. CD 2/25.

Fla., Miami—HOTEL—B.A. About 3/16—Hotel Biscayne, c/o Albert Annis, archt., 420 Lincoln Rd., Miami Beach, hotel, Approx. $250,000. CD 1/30.

▲ **W. Va., Weirton**—COMMUNITY CENTER—B.A. About 3/17—Weirton Community Center, Weirton, 1 story, bsmnt., 100x150 ft., brick, granite, steel community center, $1,000,000. John J. Reitz, Steubenville, O., archt. CD 1/25.

Mass., Palmer—HOSPITAL—B.A. 3/17—Wing Memorial Hospital, 491 N. Main St., 3 story, brick, steel, concrete hospital addn., N. Main St. $650,000. Plans deposit $50. CD 12/13.

Wash., Seattle—LODGE—B.A. 3/17—Sons of Norway, 2015 Boren Ave., 3 story 74x120 ft. rein.-con. lodge $400,000, Plans deposit $25. E. K. Mahlum, 405 Jones Bldg., archt. CD 8/12.

▲ **Tex., Houston**—OFFICE—B.A. 3/20—Jesse H. Jones, Chronicle Bldg., 16 story, bsmnt. office, $2,500,000. Alfred C. Finn, Bankers Mortgage Bldg., archt. Rob. J. Cummins, Bankers Mortgage Bldg., engr. Reg. F. Taylor, Bankers Mortgage Bldg., mech. engr. CD 2/15.

Calif., Inyokern—HOUSING—Bids Asked—Eleventh Naval Dist., P. Wks. Office, 1220 Pacific Hy., San Diego, construct, manage and finance 115 family units for enlisted personnel and 485 family units for officers incl. site imprvs. and utilities at Naval Ordnance Test Station.

Conn., Bridgeport—SCHOOL—Bids Asked—St. Peter's Roman Catholic Parish, Rev. Leo M. Finn, pastor, 699 Colorado Ave. (selected list bidders) brick, stone, steel 8 classroom parochial school, Colorado and Beechwood Aves. $250,000. J. Gerald Phelan, 211 State St., archt. Fletcher Thompson, Inc., 211 State St., engr. CD 12/15.

Ill., Chicago—SCHOOL—Bids Asked—St. Turibius Parish, 4115 W. 56 St., 2 story, 4 classroom school addn., 1 story, brick, concrete, stone steel church. J. A. Slupkowski, 3024 Haussen St., archt.

▲ **O., Cincinnati**—RESIDENCES—Bids Asked—Seven Hills Homestead Assn., c/o Ronald C. Ferguson & Assoc., 1820 Central Parkway, six hundred 1 and 1½ story, bsmnt. residences, Mt. Healthy, $4,000,000. Findley C. Brooke, 1820 Central Parkway, archt. CD 7/8.

SOON LETS CONTRACT

Ind., Richmond—HALL OF SCIENCE—Earlham College, National Rd. West Richmond, soon lets contract Davis Worth Dennis Hall of Science, $736,000. Vincent Elling, 917 Corinthian Ave., Phila., Pa., archt. CD 10/4.

N. J., Blackwood—ADMINISTRATION, etc.—Mother of Our Saviour Seminary, Little Gloucester Rd., soon lets contract administration, gymnasium and auditorium, $600,000. George Von Uffel Jr., 30 Warwick Rd., Haddonfield, archt. CD 8/12.

LOW BIDDERS

Ore., Eugene—HOSPITAL—Sacred Heart Hospital, Eugene, Feb. 15, general contract 6 story hospital addn., from R. B. Hammond, 1241 N. Williams St., Portland, $769,915. CD 1/13.

▲ **Tex., Houston**—HOSPITAL—Arabia Temple Shrine, AAONMS, 1322 Prairie St., Feb. 21, 8 story bsmnt, 277-bed hospital for crippled children from Knutson Constr. Co., Commerce Bldg. (base bid) $1,144,700. CD 2/23.

CONTRACTS AWARDED

▲ **Conn., Stamford**—HOUSING—Ridgeway Terrace Co., c/o S. J. Kessler & Sons, archt., 118 E. 28 St., New York, N. Y., 207 two story, brick veneer, frame family housing units, Bedford St., to K & L Constr. Co., Scarsdale, N. Y., Approx. $1,175,000. CD 2/23.

▲ **Calif., Downey**—DWELLINGS—Amelia Estates, Inc., 9434 Long Beach Blvd., South Gate, 196 frame, stucco dwellings, Daiberg, Van Pultan, Actina, Birkhall and Clark Sts., to Biltmore Homes, 9434 Long Beach Blvd., South Gate, $1,196,610.

▲ **Calif., Inglewood**—APARTMENT HOUSING—Hollypark Knolls, 4015 W. Jefferson Blvd., Los Angeles, apartment housing, incl. 392 apartments, Crenshaw Blvd., to W. E. Robertson Co., 4015 W. Jefferson Blvd., Los Angeles. Approx. $3,000,000. Max Maltzman, 4015 W. Jefferson Blvd., Los Angeles, archt.

▲ **Calif., Los Angeles** — DWELLINGS — Scholer Homes, 1721 Monte Cielo St., 96 frame, stucco, brick, wood siding dwellings, Kister Ave. and Burbank Blvd. Owner builds, $1,000,000. McDonald Drafting Service, 3736 W. Slauson St., archt.

▲ **Ia., Davenport**—APARTMENT—John G. Miller Constr. Co., 222 W. Mullan St., Waterloo, apartment on 7 acre tract, E. 30 St., $750,000; Mt. Ida apartment, 11 St. and College Ave., $500,000, Owner builds.

▲ **Ia., Des Moines**—APARTMENTS—Weitz Co., Inc., 406 Fleming Bldg., University Terrace Apartments, 36 St. and Forest Ave. Owner builds, $1,000,000.

▲ **Ia., Ottumwa**—HOSPITAL—Ottumwa Hospital Assn., general contract hospital to Ringland-Johnson, Inc., Locust St., Des Moines, $948,495. Bids 1/31, CD 2/16, under LB.

▲ **Md., Baltimore**—APARTMENTS—Broadway Apartments Corp., c/o Palmer, Fisher, Williams & Nes, archts., 1020 St. Paul St., 14 story, bsmnt., 465 unit, 119x130x403 ft., masonry apartment, 116 W. University Parkway to John K. Ruff, Inc. 100 W. 22 St., Zone 18, $2,300,000.

Mass., Winchester—HOSPITAL—Winchester Hospital, 41 Highland Ave., 4 story, bsmnt., 24,000 sq. ft. brick, steel concrete hospital addn., alterations, to Daniel Cunningham Constr. Co., Inc., 20 Kilby St., Boston, $1,894, Bids 1/20, awarded 2/17, CD 1/27 under LB.

▲ **N. Y., Cooperstown**—HOSPITAL—Mary Imogene Bassett Hospital, Cooperstown, hospital addn., to George A. Fuller Co., 597 Madison Ave., New York, Zone 22, $1,200,000. Bids 1/6. CD 12/12.

N. Y., New York—POST OFFICE—Pat-Bee Hotel Corp., 38 W. 32 St., Zone 1, post office, 256-60 Water St., 1-19 Peck Slip and 312-20 Pearl St., to Cauldwell Wingate Co., 101 Park Ave., Zone 17. Approx. $500,000. Jacob Feld, 60 E. 23 St., Zone 23, archt.

▲ **O., Cincinnati**—RESIDENCES—Paul & Nelson, 1203 N. Bend Rd., Zone 24, ninety-five 1½ story bsmnt, brick residences, North College Hill, separate contracts. $1,000,000. CD 2/2.

▲ **O., Cincinnati**—APARTMENTS—Warner-Kanter Co., 216 Empire Bldg., Birmingham, Ala., apartments, (A) 350 units Canterbury Gardens (B) 926 units Stratford Manor Apartments, concrete, brick, constr., to H. K. Ferguson Co., Ferguson Bldg., Cleveland, $3,000,000. Pembleton & Mims, 508 Title Guarantee Bldg., Birmingham, Ala., archts.

▲ **O., Euclid**—APARTMENT—Benton Building Co., 481 Babbitt Rd., ranch type apartment between E. 232 and E. 238 Sts. on Lake Shore Blvd., separate contracts. $2,500,000. CD 2/13.

▲ **Okla., Oklahoma City**—Y. M. C. A. BLDG.—Young Mens Christian Assn., 125 N. W. 2 St., 8 story, bsmnt., Y. M. C. A. bldg., 5 and Robinson Sts., to Harmon Const. Co., 1405 N. W. 5 St., $1,303,451. Est. $1,750,000. Bids 2/23, awarded 2/25. CD 1/27.

Pa., Chester — RESIDENTIAL DEVELOPMENT — John Alberto & Son, 2204 S. Juniper St., Phila., residential development, near here, separate contracts. $900,000.

▲ **Pa., Phila.**—APARTMENT—Parkway House, Inc., c/o Roth & Fleisher, archts., 1420 Walnut St., apartment, 22 St. and Pennsylvania Ave., to E. J. Frankel, 1325 Walnut St., $4,000,000.

▲ **Pa., Phila.**—RESIDENCES—Mark Siass, Bustleton and Philmont Aves., residential development, Barklo Ave., etc., separate contracts, $1,238,000.

▲ **Pa., Pittsburgh** — APARTMENT — Kenilworth, Inc., 5821 Walnut St., 100x180 ft., brick on block, steel apartment, to Behrman & Passell, 5821 Walnut St. Approx. $1,300,000. Tennyson & Van Wart, 666 Washington Rd., Zone 16, archts.

▲ **Pa., Pittsburgh**—HOTEL—Wm. Penn Hotel, Grant St., hotel alterations, to Trimbel Co., 1719 Penna Ave. Approx. $1,000,000.

R. I., Bristol—HOUSING—Castle Constr. Co., Popasquash Rd., 125 single frame homes, Bristol Shore Park. Owner builds. $750,000.

Tex., Houston—DWELLINGS—Bayou Estates, Inc., c/o W. C. Lowery, 7745 Buena Vista St., 74 dwellings, owner builds. Approx. $700,000. CD 2/6.

Tex., Houston—DWELLINGS—Pederson Realty Co., 2046 Cortindt St., 50 dwellings in Sunnyside Addn., and 40 dwellings off Reid Rd., to Western Constructors, c/o R. David Crocker, 1725 Milford St. Approx. $326,000 and approx. $265,000 respectively. CD 2/20.

▲ **Tex., Houston**—DWELLINGS—Suburban Homes Realty Co., 300 dwellings, Little York Rd., north of Parker and Bauman Rds., to Suburban Building Co., Sterling Bldg. Approx. $1,750,000. CD 2/16.

Tex., Wichita Falls—DWELLINGS, etc.—R. G. Hughes, Pampa, Unit 2, 75 dwellings $375,000 Unit 3, 75 apartment units, $350,000. Owner builds. CD 8/4.

▲ Ont., Scarborough—HOUSING—Syndicate, John C. Cragg, 2255 Yonge St., Toronto, first units of housing development at Cliffside Golf Course, Kingston Rd., to Economy Const. Co., Wilson Ave., Scarborough. Approx. $10,000,000-$12,000,000. CD 2/27.

INDUSTRIAL BUILDINGS

BIDS ASKED

D. C., Wash.—PLANT—B. A. 3/13—A. Hamilton Wilson, archt., 1022 20 St. Bldg., 139 x 168 ft., brick, concrete, steel cinder block brewing plant, Queens Chapel Rd. and Adams Pl. N. E., for Gunther Brewing Co., S. Conniing St., Baltimore, Md.

Ont., Toronto—GARAGE—B.A. 3/14—Toronto Electric Comrs. 14 Carleton St., garage, Wellesley St. W. $75,000.

Ont., London—PLANT—B.A. 3/14—M. M. Dillon & Co., engrs., Bank of Toronto Chambers, London, 2 story, bsmnt. 53x110 ft., rein.-con., structural steel, brick plant addn., for Empire Brass Mfg. Co. Ltd., Dundas St. Approx. $100,000. Extended date. CD 2/23.

Pa., Bridgeport—FACTORY, etc.—B.A. 3/15—Tube Methods Inc., Depot and Rambo Sts., factory addn., alterations, $70,000. George A. Greeby, Montgomery Trust Arcade Bldg., Norristown, engr. CD 6/2, under LB.

Ont., Niagara Falls—FACTORY—B. A. 3/15—Joliette Steel Ltd., 256 Portage Rd., 1 story, 88 x 190 ft., concrete, steel factory addn. $100,000. American Brake Shoe Co., Mawah, N. J., U. S. A., archts.

Tex., Brady — WAREHOUSE — B.A. 3/16—McCulloch County Electric Co-operative, Brady, 34,000 sq. ft. masonry warehouse. $145,000. Giesecke, Kuehne & Brooks, 121 E. 8 St., Austin, archts.

Idaho, Pocatello—WAREHOUSE, etc.—Bids Asked—Garrett Freightlines, Inc., Pocatello, 12,000 sq. ft. office bldg., 25,600 sq. ft. freight dock, 38,800 sq. ft. shop and store dpt., 20,000 sq. ft. brick, cement block warehouse, $700,000.

SOON LETS CONTRACT

▲ Pa., Phila—GARAGE—Elgin Garages, Inc., 1825 Market St., soon lets contract garage, 15 and Sansom Sts. $1,000,000. W. F. Silliman, S. 28 St., archt.

Tex., Galveston—WAREHOUSE—B. A. 3/15—Galveston Wharves, 2324 Strand St., warehouse, Unit 1. $600,000. Extended date. CD 2/13.

CONTRACTS AWARDED

▲ Calif., Maywood — WAREHOUSES — Harold Roach Constr. Co., 607 N. Vermont Ave., Los Angeles, two 240,000 sq. ft. reinforced brick warehouses. Owner builds. $1,000,000.

▲ Ill., Chicago—FACTORY—Central Waxed Paper Co., 5070 W. Roosevelt St., Zone 44, 150,000 sq. ft., brick, steel, concrete factory, to Freevol-Smedberg Co., 5807 W. Chicago Ave., Zone 44. $1,000,000. Awarded 2/20. Battey & Childs, 231 S. LaSalle St., Zone 4, engrs. Bids 12/10. CD 11/22.

▲ O., Cincinnati—WAREHOUSE, etc.—J. T. Ryerson & Sons, Inc., Front and Ferguson Sts., warehouse and office, to Ferro Concrete Constr. Co., 203 W. 3 St., Approx. $1,000,000. CD 1/31.

▲ Pa., Pittsburgh—VINEGAR—H. J. Heinz Co., 1062 Progress St., 3 story, 88x308 ft. brick, block vinegar bldg., loading docks, silos, railroad siding and paving, erecting grain elevator and 8,000 gal. alcohol storage tank, to George A. Fuller Co., 597 Madison Ave., N. Y. $1,500,000. Jaros, Baum & Bolles, 415 Lexington Ave., New York, N. Y., engrs. Bids 1/16. CD 12/28.

▲ Tex., Crane—COMPRESSOR, etc.—El Paso Natural Gas Co., Bassett Tower, El Paso, gas compressor and treating plant, own forces. Approx. $1,850,000.

▲ Tex., Longview—GENERATING UNIT, etc.—Southwestern Gas & Electric Co., Longview, 2nd 35,000 kw., electric generating unit near here. Approx. $7,350,000 near here, transmission lines in vicinity of power plant, Approx. $200,000, own forces. CD 11/14.

▲ Alta., Edmonton—REFINERY—British American Oil Co., Ltd., 10622 Jasper Ave., 2,000,000 bbl. per year oil refinery on eastern outskirts of city, to Canadian-Kellogg Co., Ltd., 34 Adelaide St. W., Toronto, Ont., Approx. $8,000,000. CD 12/2.

UNCLASSIFIED

BIDS ASKED

Minnesota—RURAL DISTRIBUTION LINES—B. A. 3/14—Mille Lacs Region Co-operative Power & Light Assn., Aitkin, 212 mi. rural distr. lines, Aitkin, Mille Lacs and Crow Wing Counties, Proj. Minnesota 81 H. Aitkin, Approx. $200,000, Plans deposit $10, United Eng. Service, 600 Kasota Bldg., Minneapolis, engrs.

† Arkansas—RADIO TOWER—B.A. 3/15—U. S. Eng., P.O. Box 97, Memphis, 1, Tenn., erecting 300 ft. steel radio tower at Maintenance and Repair Depot, 1¼ mi. below the Memphis and Arkansas Bridge, Crittenden Co., CIVENG-40-041-50-112.

Md., Baltimore—FIELD HOUSE—B. A. 3/15—City, Bureau Bldg. Constr., 410 Municipal Bldg., Zone 2, field house, playground, wading pool, Towanda Park, Towanda and Oswego Aves. $60,000. Plans deposit $20. R. E. L. Williams, 410 Municipal Bldg., Zone 2, bldg. constr. engr. CD 1/27/44.

New York—OBSERVATION BOOTH—B.A. 3/15—Triborough Bridge & Tunnel Auth., at Engineers Office Bldg., 10 State St., New York, Zone 4, construct masonry observation booth for Brooklyn-Battery Tunnel, Contr. BBT-10A. Plans deposit $5. CD 7/5/40.

Ill., Joliet—STADIUM—B.A. 3/18—Joliet Park Dist., City Hall, 1 and 2 story, 10,000 seating concrete open air stadium, $300,000. Richard J. Barr, 32 Van Buren St., archt.

† Tex., Fort Bliss—SWIMMING POOL, etc.—B.A. 3/20—U. S. Government, Custodian, Special Welfare Funds, Expansion c/o Post Eng., Ft. Bliss, rein.-con. swimming pool, bathhouse filter house, pertinent facilities, Inv. No. SWF-41-014-50-1. Approx. $60,000.

CONTRACTS AWARDED

Kan., Hutchinson—FIELD HOUSE—City, City Hall, general contract field house, to L. R. Foy, Hutchinson. $742,562. Bids 1/18. CD 1/31, under LB.

▲ Md., Baltimore—PIER—Baltimore & Ohio R.R. Co., A. C. Clarke, ch. engr., Baltimore and Charles Sts., Zone 1, ore pier, Stone House Cove, Baltimore Harbor, to Empire Constr. Co., 31 S. Calvert St. dredging, to Arundel Corp., Pier 2, Pratt St.; equipment, to Dravo Corp., Neville Island, Pittsburgh, Pa. Total $5,000,000. Bids 2/24. CD 2/21.

▲ Texas and Louisiana—GAS PIPE LINE, etc.—Mid-Valley Pipe Line Co., E. F. Morrill, v. p., 407 N. 8 St., St. Louis 1, Mo., 110 mi. 20 in. natural gas pipe line from Longview, Tex. to Haynesville, La., to O. R. Burden Constr. Co., Longview, Tex., Approx. $2,675,000***pumping stations, Longview, Tex., to Thomas Bryan & Assoc. Inc., M & M Bldg., Houston, Tex., Haynesville, La., to Dresser Engineering Co., Masonic Bldg., Tulsa, Okla., Mayersville, Miss., Abbeville, Miss., and Denver, Tenn., to Refinery Maintenance Co., 2500 N. Almeda St., Compton, Calif., Clarkston, Ky. and Hebron, Ky., to Dravo Corp., Neville Island, Pittsburgh, Pa., radio sys. to Motorola, Inc., 4545 W. Augusta St., Chicago, Ill. CD 4/25.

▲† Washington—RAILROAD RELOCATION—U. S. Eng., 19 E. Poplar St., Walla Walla, constr. 11.6 mi. section, Spokane, Portland & Seattle Ry. relocation, CIVENG-45-164-50-65, to Gibbons & Reed Co., 259 Third St. W., Salt Lake City, Utah, $1,548,600. Bids 2/10, awarded 2/20. CD 2/14, under LB.

Proposal Advertisements see pp. 65 to 67 & 75

OFFICIAL PROPOSALS

Bids: April 3, 1950 (628)

George Washington Bridge West 179th Street Tunnel

THE PORT OF NEW YORK AUTHORITY
ELECTRICAL INSTALLATION
CONTRACT GWB-14

Sealed proposals for electrical installation for the West 179th Street Tunnel, New York City, will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, N. Y., until 2 P. M. Monday, April 3, 1950, and thereafter in the Auditorium of the Authority at the same address until 2:30 P. M., on the same date, at which latter time and place said proposals will be publicly opened and read.

Contract documents may be seen at the office of the Chief Engineer, and copies will be furnished upon deposit of $25.00 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman,
Chairman.

New York, March 9, 1950.

Bids: March 30, 1950 (627)

Sanitary Sewerage System Sewerage Treatment Plant & Pumping Stations

INVITATIONS FOR BIDS
SCHUYLKILL HAVEN MUNICIPAL AUTHORITY
SCHUYLKILL COUNTY,
PENNSYLVANIA

Sealed proposals for the construction of a complete sanitary sewerage system, a primary sewage treatment plant, and sewage pumping stations will be received by Schuylkill Haven Municipal Authority until 7:30 P.M., E.S.T., on Thursday, March 30, 1950, at which time the bids will be publicly opened and immediately read in a meeting of the Authority to be held at the Borough Hall, Schuylkill Haven, Pennsylvania.

OFFICIAL PROPOSALS

The work will be divided into two sections and separate proposals will be received for each portion of the project, as follows:

Section No. I
SANITARY SEWERAGE SYSTEM, consisting of 38,226 feet of pipe ranging in size from 8 to 18 inches, 350 manholes and other appurtenances;

Section No. II
PRIMARY SEWAGE TREATMENT PLANT, including a control building, separate sludge digestor, primary settling tanks, sludge drying beds and other appurtenances.
Three sewage pumping stations
Plumbing
Heating
Electrical Work

Specifications, Proposal Forms, Drawings, and other contract documents, may be examined at the office of the Authority in the Borough Hall in Schuylkill Haven, or at the office of Ivan M. Glace, Consulting Engineer, Harrisburg, Pennsylvania. A complete set of bidding documents, for either section, may be obtained at either office upon depositing $25.00 per section. This full amount will be refunded if a bid is submitted and if the documents are returned in good condition within 10 days after the opening of bids. If the documents are not returned within this period, the deposit will be forfeited. No deposit will be returned to non-bidders.

No bid on any of the construction work will be considered unless it is accompanied by the bidder's certified check drawn upon a solvent bank and made payable to the order of Schuylkill Haven Municipal Authority for the sum of $10,000 for the sewerage system; for $5,000 for the sewage treatment plant; or for 10% of the base bid on the pumping stations, plumbing, heating or electrical contracts, which sums will serve as bid security and will be forfeited to the Authority as liquidated damages in the event an award is made and the contracts and bonds are not promptly and properly executed as required in the specifications.

No bidder may withdraw his bid within 30 days after the actual date of the opening.

Schuylkill Haven Municipal Authority reserves the right to reject any or all bids, to waive any technical defects, and to accept any bid that it may deem to be for the best interests of the Authority.

BY ORDER OF SCHUYLKILL HAVEN MUNICIPAL AUTHORITY
W. Edward Brown,
Secretary

OFFICIAL PROPOSALS

Bids: April 6, 1950 (602)

Water Treatment Plant

NOTICE TO BIDDERS

Sealed proposals for the construction of a water treatment plant will be received by the Board of Trustees of the Village of Westfield, New York, at the Municipal Building, 23 Elm Street, until two o'clock P.M., E.S.T., on the 6th day of April, 1950.

Information for bidders can be obtained at the office of the Superintendent of Water Works at Westfield, New York, or the office of Williams S. Lozier Company, Engineers, 10 Gibbs Street, Rochester, New York. Copies of plans may be obtained from the Engineers upon the payment of $10.00 for each set, which will not be refunded.

The work consists of the construction of a filter plant with capacity of 2,000,000 gallons per day and a reinforced concrete reservoir with capacity of 1,400,000 gallons and the optional construction of a garage.

W. H. Rodden, Clerk-Treasurer
Westfield, New York.

Additional Proposals
on Pages 66, 67, and 75

OFFICIAL PROPOSALS
(Continued from page 65)

Bids: March 21, 1950 (618)

A Sanitary Sewer Outfall

AND LATERAL SEWERS TO SERVE THE HIGHLAND GARDENS AND CHISHOLM AREA, MONTGOMERY COUNTY AND CITY, ALABAMA

Sealed proposals enclosed with the title of the work, name of the bidder and the date of the presentation, will be received by the City Engineer of Montgomery, Alabama, at this office in the City Hall until 11:00 a.m. Central Standard Time, Tuesday, March 21st, 1950.

The work is designated as Contract No. 1—Installation of a Sanitary Sewer Outfall and Lateral Sewers to serve the Highland Gardens and Chisholm areas.

The bid will be immediately opened and read publicly, copies of the specifications and forms of proposals, contract and bonds are on file and may be inspected in the office of the City Engineer, or in the office of J. M. Garrett & Son, 1105 Cleveland Avenue, Montgomery, Alabama. Copies may be obtained therefrom by eligible contractors upon the deposit or payment of $20.00 per set. The full amount of such payment will be returned to each actual bidder, or if no bid is submitted $10.00 will be refunded to the non-bidder, upon the return of all documents in good condition within ten (10) days after the date of opening bids.

A certified check in the amount of not less than five (5%) per cent of the bid price or a bid bond in the amount of not less than ten (10%) per cent of the bid price, deposited in accordance with the terms of the specifications, will be required of each bider.

No bids will be received after the date and hour set for the opening of bids and no bids submitted may be withdrawn for a period of thirty (30) days thereafter.

All bidders must be contractors licensed by the State Licensing Board for General Contractors, as required by Act No. 297, General Laws of Alabama approved September 2, 1935. Bidder's name and license number must be placed on the envelope containing his proposal.

The City reserves the right to increase or decrease the amount of this contract by twenty-five (25%) per cent.

The City of Montgomery reserves the right to reject any or all bids and to waive informalities.

City of Montgomery, Alabama
John L. Goodwyn, Mayor
Silas D. Cater, City Clerk

Bids: March 15, 1950 (614)

State Highway Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Chapter 63, Laws of 1936, as amended, and special provisions for projects financed with federal aid funds (Highway Law), and Public Buildings Law, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on Wednesday, March 15, 1950 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract containing 1 to 15 sheets is $5.00; 16 to 30 sheets, $10.00; over 30 sheets, $20.00. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT NO. 1				
		G. L. Nickerson, Dep. Engr., 353 Broadway, Albany, N. Y.				
Essex	FASS 50-1	Tahawus-Schroon River, Pt. 1 (Co.Rd.) Proj. No. S1047(2)	4.44	D. S. Bit. Treat. Graded Grav.	$19,000 Plans-$10	$324,000
		DISTRICT NO. 6				
		H. F. Brumm, Dist. Engr., 30 W. Main St., Hornell, N. Y.				
Schuyler		Montour Falls: Shequaga Creek Bridges at Genesee and Steuben Streets		Removing Bridge Superstructures from Existing 30' 10" Conc. Slab and 60' Plate Girder	$5% of Bid Plans-$5	$12,310
		DISTRICT NO. 7				
		R. F. Hall, Dist. Engr., 444 VanDuzee Street, Watertown, N. Y.				
Jefferson	FARC 50-5	Fargo-Natural Bridge, S.H.-8190 Proj. No. F273(2)	0.55	Reinf. Concrete Slab 25.4' Asp. Conc. Opt. =0.53 Mi. Misc. Work =0.02 Mi.	$5,500 Plans-$5	$99,000
St. Lawrence	RC50-6	Gouverneur-Edwards, Pt. 1, S. H.-1263	0.13	8" Cem. Conc. Pavt. 22'-34" Wide =0.12 Mi. Misc. Work =0.01 Mi. Alpha I-Beam 3 Sp. at 80' Ea.; Alpha =$287.40	$15,000 Plans-$10	$259,000
		DISTRICT NO. 8				
		J. S. Bixby, Dist. Engr., Pleasant Valley Road., Poughkeepsie, N. Y.				
Orange & Rockland	PIP50-1	Palisades Interstate Parkway, Pts. 1&2 Play Area-Bear Mountain	3.75	Grading & Structures	$80,000 Plans-$20	$1,581,000
		DISTRICT NO. 10				
		J. J. Darcy, Dist. Engr., Montauk Highway at Little E. Neck Road, Babylon, L. I., N. Y.				
Kings	FA BQE50-1	Brooklyn-Queens Expressway (Cont. 5A) (Meeker Ave. Structure) Proj. U1066(6)	1.00	Reinf. Conc. Slab & Misc. Work on Existing Struct.	$90,000 Plans-$20	$1,500,000

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by cash, draft or certified check payable to the order of "State of New York, Commissioner of Taxation & Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders".

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

Bids: March 29, 1950 (626)

Construction of Superstructure

PENNSYLVANIA TURNPIKE COMMISSION
Harrisburg, Pennsylvania
NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission, through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania, until 10:00 A.M. (Eastern Standard Time), the 29th day of March 1950, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania, and immediately publicly opened and read aloud, for the following contract:

For the construction of the superstructure, Turnpike Section 31AB, Allegheny River Bridge, part of the Western Pennsylvania Turnpike Extension, in Harmar and Plum Townships, Allegheny County, Commonwealth of Pennsylvania. This section being situated as follows:

Beginning at a point on the right descending bank of the Allegheny River, Allegheny County at Turnpike Station 1014 on the Turnpike Centerline, thence in an Easterly direction across the Allegheny River to Turnpike Station 1037 on the Turnpike Centerline, a distance of .4356 miles.

The approximate quantities of the principal items are as follows:

Class A Concrete, 777 cubic yards; Steel Reinforcing Bars, 100,000 pounds; Fabricated Structural Metalwork, 10,300,000 pounds; Steel Beam Bridge Flooring, 131,700 square feet; Navigation Lighting, lump sum.

In general, the principal parts of the work include:

A. Construction of structural steel superstructure.
B. Construction of concrete filled steel grid bridge deck, reinforced concrete curbs and metal handrailing.
C. Completion of expansion dams and abutments.
D. Installation of navigation lighting and control equipment.

Copies of plans will be on file and open to public inspection at the offices of the Pennsylvania Turnpike Commission located at Harrisburg, Pennsylvania on 2 March 1950. Specifications and other contract documents will be on file at the same offices and open to public inspection on 10 March 1950. Specifications and contract documents will not be available before this date for inspection or for mailing to prospective bidders. Copies of specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five ($5.00) dollars per copy.

Plans and contract documents, exclusive of specifications may be obtained from the Commission upon deposit of ten ($10.00) dollars for each set, such deposits to be refunded in full to any actual bidder upon return of such documents in good condition within five (5) days after the date of the opening of the bids. Refund will be made for all plans and contract documents if the project is withdrawn from letting by the Pennsylvania Turnpike Commission. Remittances are payable to the Pennsylvania Turnpike Commission and must accompany requests for drawings, specifications and contract documents.

The character and amount of bid security to be furnished by bidder is stated in the Instructions to Bidders.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer
Harrisburg, Pennsylvania
28 February 1950

Continued on page 67)

Official Proposals Columns of ENGINEERING NEWS-RECORD

are MUST reading, each week, for contractors, engineering-construction companies, equipment and materials manufacturers, all over the United States.

. . . and used regularly for over 50 years by government, state, county and municipal departments for advertising bids.

Official Proposal Division

ENGINEERING NEWS RECORD

Address: New York 18, N. Y.

OFFICIAL PROPOSALS
(Continued from page 66)

Bids: March 20, 1950 (624)

Toll Booths & Equipment

PENNSYLVANIA TURNPIKE COMMISSION
Harrisburg, Pennsylvania
NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission, through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania until 2:00 P.M. (Eastern Standard Time), the 20th day of March 1950, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania, and publicly opened and read aloud for furnishing the following equipment.

The equipment to be furnished and delivered includes thirty-six (36) toll booths with canopies and equipment and accessories for fifty (50) traffic lanes at fourteen (14) Interchange Toll Plazas of the Eastern and Western Extensions of the Pennsylvania Turnpike.

Copies of plans and specifications are on file and open to public inspection at the offices of the Pennsylvania Turnpike Commission located at Harrisburg, Pennsylvania, on 6 March 1950. Plans and specifications will not be available before this date for inspection or for mailing to prospective bidders. Copies of specifications and plans may be obtained at the office of the Commission for the sum of Seven Dollars and Fifty Cents ($7.50) per copy.

The character and amount of bid security to be furnished by the bidder is stated in the Instructions to Bidders. The successful bidder will be required to furnish a bond for the faithful performance of the contract in the full amount of the contract.

The Pennsylvania Turnpike Commission reserves the right to waive any informality in or to reject any or all proposals.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer

Harrisburg, Pennsylvania
February 27, 1950

Bids: March 20, 1950 (625)

Construction of Superstructure

PENNSYLVANIA TURNPIKE COMMISSION
Harrisburg, Pennsylvania
NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission, through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania, until 2:00 P.M. (Eastern Standard Time), the 20th day of March 1950, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania, and immediately publicly opened and read aloud, for the following contract:

For the construction of the superstructure, Turnpike Section 29CD, Beaver River Bridge, part of the Western Pennsylvania Turnpike Extension, in Big Beaver and North Sewickley Townships, Beaver County, and situated approximately one-half (½) mile East of Homewood Borough in Big Beaver Township, Beaver County, Commonwealth of Pennsylvania. This section being situated as follows:

Beginning at a point approximately 284 feet West of the Centerline of the West track of the Pittsburgh and Lake Erie Railroad at Turnpike Station 266+15.50 in Big Beaver Township, Beaver County, thence in an Easterly direction 1,545 feet to a point approximately 478 feet East of the Centerline of the East Track of the Pennsylvania Railroad at Turnpike Station 281+60.50 in North Sewickley Township, Beaver County, a distance of approximately 0.293 miles.

The approximate quantities of the principal items are as follows:

Class A Concrete, 3,000 cubic yards; Steel Reinforcing Bars, 696,300 pounds; Fabricated Structural Carbon Steel, 4,957,000 pounds; Fabricated Structural Silicon Steel, 2,195,000 pounds; Metal Handrailing, 3,162 lineal feet; Malleable Iron Castings, 15,600 pounds.

In general, the principal parts of the work include:

A. The Construction of the bridge superstructure, B. Paving.

Copies of plans are now on file and open to public inspection at the offices of the Pennsylvania Turnpike Commission located at Harrisburg, Pennsylvania. Specifications and other contract documents will be on file and open to public inspection on 7 March 1950. Specifications and contract documents will not be available before this date for inspection or for mailing to prospective bidders. Copies of specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five ($5.00) dollars per copy.

Plans and contract documents, exclusive of specifications may be obtained from the Commission upon deposit of Ten ($10.00) dollars for each set, such deposits to be refunded in full to any actual bidder upon return of such documents in good condition within five (5) days after the date of the opening of the bids. Refund will be made for all plans and contract documents if the project is withdrawn from letting by the Pennsylvania Turnpike Commission. Remittances are payable to the Pennsylvania Turnpike Commission and must accompany requests for drawings, specifications and contract documents.

The character and amount of bid security to be furnished by bidder is stated in the Instructions to Bidders.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

PENNSYLVANIA TURNPIKE COMMISSION
Secretary and Treasurer
James F. Torrance

Harrisburg, Pennsylvania
28 February 1950

(Continued on page 75)

EMPLOYMENT

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

CIVIL SERVICE

WANTED—EXPERIENCED bridge designers and draftsmen. Give references, information on education, experience, salary expected, and date available. T. R. Gunter, Jr., Bridge Engineer, State Highway and Public Works Commission, Raleigh, N. C.

POSITIONS VACANT

WANTED, CLASS "A" Carpenter Foreman and Superintendent for company specializing in good homes, commercial work, schools, etc. Top wages for one who shows results. West Brothers, 1208 South Bunn, Bloomington, Ill.

STRUCTURAL ENGINEER with broad experience in design detailing and drafting of reinforced concrete for buildings. Must have had experience on slip formed concrete design for grain elevators and cement silos. Ability in estimating and supervision of small number of other engineers desirable. For permanent employment in small office of well established engineering and construction company located in San Francisco. In reply give age, experience record, education, salary desired. P-2386, Engineering News-Record.

EXECUTIVE TYPE Engineer by large Wisconsin contractor. Must be able to prepare estimates, close contracts and complete the jobs within the estimates. Company has been established over 50 years and wishes to expand. Sufficient capital available. Specialize in commercial, industrial and public work. Exceptional opportunity for an aggressive young man to establish himself permanently. Should not be much over 40 years old. Reply at once giving age, education and experience. Confidential. Reply P-2422, Engineering News-Record.

ESTIMATOR WANTED by General Contracting Firm located in Pittsburgh, Penna. Applicant to be experienced in estimating all types of General Building Construction. If interested, advise age, education, experience and salary desired. P-2432, Engineering News-Record.

POSITIONS VACANT

WANTED, SEVERAL engineering graduates, under 35, by large industrial fire prevention organization maintained by national insurance group for field work involving periodic inspections and special consulting service. Permanent. P-1934, Engineering News-Record.

CIVIL ENGINEER wanted for a responsible permanent position with a large public utility located in eastern Pennsylvania. Must have a broad experience, a substantial portion of which has been in hydraulics. The position presents an excellent opportunity to the right man. Apply by letter stating age, education, detailed experience and salary requirements. P-2275, Engineering News-Record.

CIVIL ENGINEER wanted for a responsible permanent position with a large public utility located in eastern Pennsylvania. Must have a broad experience, a substantial portion of which has been in hydraulics. The position presents an excellent opportunity to the right man. Apply by letter stating age, education, detailed experience and salary requirements. P-2480, Engineering News-Record.

WANTED: MECHANICAL Engineer, age 35 to 45, should have had at least ten years experience in material handling, preferably in hoisting equipment field, also should have supervisory ability. Write full qualifications and salary requirements. P-2372, Engineering News-Record.

TRANSITMAN WHO is able to do computing or drafting. Location near New York City. P-2481, Engineering News-Record.

EXPERIENCED DESIGNERS, detailers, steel and concrete bridges or buildings in New York City. Send experience resume. P-1359, Engineering News-Record.

(Continued on page 68)

WANTED
SUPERINTENDENT
thoroughly experienced in all phases of bridge construction—By established Contractor in the Southwest. Give references, experience record and salary expected.
P-2503, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

SALES MANAGER

Internationally known engineering and building firm specializing in Industrial Plant work, with main offices in the Midwest, offers a splendid opportunity for an exceptionally experienced Sales Executive.

The applicant chosen will coordinate all sales efforts for the company. Duties will involve development of new prospects and maintenance of superior sales relations with customers.

Applicants must be a proven organizer, administrator and should have design and construction experience on industrial plants as well as sales experience.

If you have qualifications fitting these requirements please mail a complete confidential resume, stating your past experience, education and salary requirements.

P-2470, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

SALESMAN

Need top flight shovel and crane salesman who can produce in Metropolitan New York area. Will sell one of leading lines. Applicant must state experience, record, age and remuneration expected, in detailed resume for consideration. Our Sales Force has been notified of this ad. All replies held in strict confidence.

SW-2378, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

Wanted for
Executive Position in Greece

. . . an engineer who knows utilities and has keen sense of diplomacy

An important waterworks organization in Greece needs a resident engineer-executive who combines know-how with the ability to get along with European diplomats.

To a man of sufficiently high calibre to qualify is offered the position of chief executive of this enterprise at a salary commensurate with his responsibility.

Address replies in confidence to

P-2355, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

WANTED
ENGINEER and GENERAL MANAGER for WATER DEPARTMENT

Borough of Wallingford, Connecticut

Position open for well-qualified Graduate Civil Engineer, capable of managing Water Department in community of about 19,000.

Experienced man under 40 preferred. Must possess knowledge of water-works construction, design and pipe line layout.

Submit photo with qualifications and references to Seymour St. John, Box 87, Wallingford, Connecticut. Replies confidential.

COST ENGINEER

Responsible position available in Midwest Office of nationally known engineering and building firm for Cost Engineer with several years field experience and actual knowledge of current construction costs for all types building and industrial process work. Good salary and opportunity for the qualified applicant.

Send detailed summary of experience and education together with statement regarding salary requirement and date available. All replies strictly confidential.

P-2471, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

WANTED SUPERINTENDENT

for sewage and waterworks by old and well-established firm, operating principally in Indiana, but planning expansion. Write only for interview. State age, experience, qualifications, reference and salary expected.

P-2548, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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POSITIONS IN

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Manufacturing	Teaching
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THE ENGINEERING AGENCY INC.
53 W. Jackson Blvd. — Chicago 4, Ill.
Room 1662 — Harrison 7-4056

(Continued from page 67)

POSITIONS WANTED

MASTER MECHANIC, Equipment Supt., Mechanical Operating Engineer, over twenty-five years' experience with erection, repair and maintenance of heavy industrial equipment, power house, pumping stations and marine equipment, etc; available immediately. Go anywhere. PW-2305, Engineering News-Record.

ESTIMATOR, WIDE experience all types buildings, concrete and masonry structures, wants new connection with an established General Contractor. Business management and engineering background. Now located Washington, D. C. Thirty years experience in construction as Superintendent, Estimator and Engineer. Prefer smaller company not loaded with unproductive overhead where a thorough knowledge of construction will pay dividends. PW-2341, Engineering News-Record.

MASTER MECHANIC, equipment superintendent or shop foreman, age 47, experienced supervisor of maintenance, repair and operation of all makes of heavy equipment, excellent references as to ability, location immaterial. PW-2376, Engineering News-Record.

STRUCTURAL MECHANICAL designing draftsman mills smelters chemical industrial refineries power plant bridges. Some specialties. PW-2362, Engineering News-Record.

CONSTRUCTION ENGINEER - Manager 20 years experience with two companies in charge of large and small projects. Experience all phases industrial and commercial construction. Thorough knowledge estimating, specifications, bid preparation, sub-contracts, job coordination and field inspections. College graduate. PW-2177, Engineering News-Record.

CIVIL ENGINEER desires to locate in deep south or southwest with steel erector as Erection Engineer. Wide experience in heavy construction including erection of steel structures. Age 35, married, BSCE, now employed. Salary and advancement of equal importance. PW-2401, Engineering News-Record.

GENERAL SUPERINTENDENT — 50 — A-1 executive always in top salary bracket. Former employers will say worth it. 25 years responsible charge major buildings and heavy construction. College graduate. Address PW-2403, Engineering News-Record.

B.S., M.S., age 39, varied design and field experience, structures. Well-acquainted with S. America: Chile, Colombia; also continent, particularly Spain. Tolerably French, good Spanish. Seeks employment with engineering organization active outside of States. PW-2446, Engineering News-Record.

GRADUATE CIVIL Engineer; 28; married; three years experience with contractor and engineer desires permanent position with a contractor. Prefer mid-west location. PW-2438, Engineering News-Record, 520 N. Michigan Ave., Chicago 11, Ill.

CIVIL ENGINEER

20 years Combined technical and industrial experience, domestic and foreign; includes highways, dams, military and civil works. Specialized in materials of construction, particularly asphalt paving, soil mechanics and foundation studies.

PW-2505, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

POSITIONS WANTED

GENERAL CONSTRUCTION Superintendent—Executive type, actual job site and office management in directing specialized trades and coordinating sub-contractors forces. All phases of multi, large and medium diversified projects, from inception to completion. Geared by practical experience for Industrial plants, heavy construction facilities, power utilities, alterations and new buildings. Cost and profit conscious. Over twenty years managing responsibilities. Emphasis on future possibilities. Excellent references. Work service summary on request. PW-2479, Engineering News-Record.

OFFICE MANAGER—Chief Accountant on heavy construction projects. Fifteen years experience const. purchasing, fiscal records, available soon for any location in states. PW-2492, Engineering News-Record.

CIVIL ENGINEERING Student-Senior-2 yrs. drafting experience—seeks evening position with architectural construction firm. N. Y. C. PW-2502, Engineering News-Record.

CIVIL ENGINEER PROFESSOR PE & LS. Available June thru September 1950. Primarily interested in highway, building construction, office or field work. Location North Atlantic States. PW-2504, Engineering News-Record.

CIVIL ENGINEER WITH M.S. degree in structural engineering from a well recognized University. One year's experience in design and construction work, age 23, single, available very soon. PW-2498, Engineering News-Record.

HIGHWAY ENGINEER. Seventeen years responsible experience in construction and maintenance including earthwork, rigid and flexible pavements, structures and sewers. Graduate civil engineer now employed as senior engineer by municipality. Desire responsible opportunity with consultant, contractor or public road authority. PW-2518, Engineering News-Record.

CIVIL ENGINEER. Project Manager. Graduate U. of Wisconsin Registration. Age 35. 12 years excellent experience-construction, maintenance and administration. Capable of assuming full charge. PW-2506, Engineering-News-Record.

SUPT. OVER 25 years of est. for tunnell's sewer-road const., blaster licensed, building const. licensed. Call TA 2-7600 or mail 827 Morris Park Ave., Bronx, N. Y.

EXECUTIVE COST and planning engineer, B.S. and C.E., registered. 20 years in design and construction of buildings, process plants, subways, dams, etc; primarily on administration, estimating, cost control and scheduling. Resume on request. PW-2524, Engineering News-Record.

PROJECT MANAGER, or Construction Supt. available immediately, 45, married, 22 years experience supervising construction products. Industrial, mechanical, commercial, waterfront, water and sewerage systems. Organize and supervise field and office. Sober and reliable. Education Civil Engineer. PW-2377, Engineering News-Record.

PART TIME WORK WANTED

STRUCTURAL DESIGNING—Steel and concrete buildings, structures, foundations. Wide experience. Complete service. Satisfaction guaranteed. PTWW-2315, Engineering News-Record.

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Engineers' precise level.

Three screw. Inverted. Almost new. German mfg. Best offer. Donald P. Gladish, 409 North 4th Street, Niles, Michigan.

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SALES REPRESENTATIVE, St. Louis, handling construction equipment, reliable hard worker, available April. Interested in permanent connection with well established company. RA-2358, Engineering News-Record.

SALES ENGINEER (Prof. Engr.) wide acquaintance among architects, engineers and contractors in Mass. desires sales agency requiring engineering know how. Exclusive territory and commission basis. Best of references. RA-2359, Engineering News-Record.

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TWENTY-SEVEN FOOT
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John B. Schultz Contracting Co., Inc.
316 Crestwood — Buffalo, 16, N. Y.

WOULD LIKE TO BUY
NEW ENGINES AND POWER UNITS

Waukesha, Hercules and Continental, also Twin Disc, Lipe, Spicer and Fuller Clutches. Must be new and in good condition. Advise what you have with price. Can use any quantity.

AUTO GEAR & PARTS COMPANY, INC.
16th & Hunting Park Ave., Philadelphia, Pa.

(Additional Equipment Wanted ads on page 72)

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ALLIS-CHALMERS Model HD-5 TRACTOR with hydr. operated bucket. Good condition.

CLETRAC Model DD CRAWLER TRACTOR with HEIL HYDRAULIC BULLDOZER. New in 1946. Good condition.

INTERNATIONAL - HARVESTER Model TD-6 CRAWLER TRACTOR. 50" tread. BUCYRUS-ERIE HYDRAULIC BULLDOZER. New in 1947. Good condition.

CATERPILLAR Model R-2 gasoline powered CRAWLER TRACTOR with La PLANTE-CHOATE HYDRAULIC BULLDOZER. New in 1940. In operating condition.

PUMPCRETE, double, Model 180, powered by WAUKESHA 6 cyl. engine with remixer powered by LE ROI gasoline engine. Few fittings, no pipe. In good condition.

BELL PRIME MOVER, with Dump Bucket, bucket splash guards, knuckle guards. New in 1948, in excellent condition.

HOUGH Model HLD PAYLOADER, hydraulic bucket control and backfiller blade. New in 1948. In good condition.

TROJAN PATROL GRADER, with blade, scarifier, bulldozer, cab, leaning front wheels. New in 1948. Excellent condition.

BUCYRUS-ERIE, Model 22-B, ¾-yard TRUCK CRANE, mounted on Sterling 10 wheel carrier, 30' boom, Crane and clam-shell equipment, no bucket. Built in 1949. Excellent condition.

REX MODEL 6-S end discharge CONCRETE MIXER, complete with power loader, water tank and 4 cyl Wisconsin air cooled engine on 2 pneumatic tired wheels. Built in 1947. Excellent condition.

McKIERNAN - TERRY PILE HAMMER, Model 6. In good condition.

LORAIN MODEL L-40 CRANE, mounted on 6 x 6 A.C. MACK, 50' boom, lifting crane equipment, less hook. Gas engine power. Built in 1941. Good condition.

CLETRAC MODEL D.G., 15" shoes, 48" tread, electric starter, crankcase guard, with Heil hydraulic Bulldozer. New in 1945. In operating condition.

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Phone: Circle 6-0919

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Price $4,500

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All the above on two wheels. Pneumatic tires.

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The mixers on four wheels. Pneumatic tires.

These are first class Concrete Mixers, Perfect tires of current design. They are "NOT TRADE INS". We bought them new for our own RENTAL SERVICE. Prices F.O.B. Chicago, Ill.

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FOR SALE OR RENT
ALL LATE MODELS

1—Allis Chalmers Tractor
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Williams Construction Co.
Box 145 Middle River
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Phone—Essex 1310

SURPLUS STOCK now available by principle in excess of present requirements:

New, in original packages, ball and roller bearings, numerous sizes.

Ball bearing electric motors from 1 to 125 horsepower, including a number of reduced voltage starters in original crates, cross-the-line switches and ammeters.

Several Diesel power units, with clutch.

All of the above well-known manufacturers.
Subject to prior sale.
Write for list:

Gruendler Crusher & Pulverizer Co.
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1—Used Model T6K Machine Truck Shovel complete with drivers cab and outriggers. The machine is in A-1 condition and was new July, 1948.
Price $7,500

This machine as a combination shovel and crane.
Price $8,000

This machine as a combination shovel, crane and backhoe.
Price $8,500

It is available for immediate delivery.

Box 1737, Pittsburgh 30, Pa.

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UNUSED AND USED

CATERPILLAR TRACTORS
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Bare and completely equipped

INTERNATIONAL HARVESTER TRACTORS
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LORAIN 2—TON MODEL MC 40 Truck Mounted. P.H. Model 150, Crawler Complete with Shovel and Back Hoe

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4 x 2's, 4 x 4's, 6 x 6's with and without winches

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for your present earthmoving equipment. 1—34E Koehring paver, 1—Heltzel cement bin 400 bbl., 2—Blaw-Knox aggregate bins, 100 ton, 1—Jaeger spreader 10' 11' 12', 1—Jaeger finishing machine Type H 11'-12', 1—Koehring bullfloat 10'-14', 1—B-B subgrader 11'-12', 7,000 ft. Blaw-Knox forms 9"x8". For details write

P. O. Box 663, Greensburg, Pa.

Three (3) Barnes 40M 4" self-priming centrifugal pumps powered by LeRoi #D140 gas engines. Steel wheels.
One (1) O. K. Portable Hoist & 48' Tower with all accessories including platform.
Will be sold under distributor's cost. Prior sale basis.
FS-2449, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

20,000 BARREL TANK
60' dia. x 41' high

Steel cone roof with structural roof supports. Detailed specs. available upon request. Used good condition, suitable re-erection.
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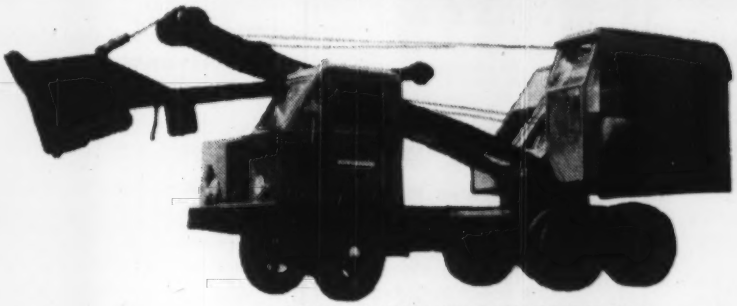

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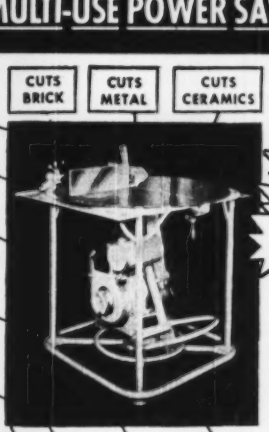

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OFFICIAL PROPOSALS

(Continued from page 67)

Bids: March 29, 1950 (601)

State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Chapter 63 Laws of 1936, as amended, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on the 29th day of March, 1950, by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the elimination of the following Grade Crossings in Steuben County.

Con. No.	Type	Name of highway and miles	Deposit for plans	Bid Deposit	Dept. est.
PSC, Relocating R. 9418	Elimination R. tracks; pavements with cement concrete pavt. & Asph. Conc. opt., including 20 R. R. Structures 3 Pedestrian Subways, 2 Hwy. Br. Structures & Incidental Drainage and Misc. Work	of grade crossings of the Erie R. R. and the D.L. & W. R.R. with various sts and N.Y.C. R.R. in the City of Corning and vicinity 8.2 miles.	$20	$300,000	$8,707,155

Maps, plans, specifications and estimates may be obtained at the office of the Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineer H. F. Brumm, 30 West Main Street, Hornell, N. Y., and may be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract containing 1 to 15 sheets is $5.00; 16 to 30 sheets, $10.00; over 30 sheets, $100.00. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal specification, and contract agreement.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by cash, draft or certified check payable to the order of "State of New York, Commissioner of Taxation & Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders".

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

U. S. Government

Department of Commerce, Bureau of Public Roads, February 21, 1950. SEALED BIDS will be received at the office of the District Ranger, United States Forest Service, Fredericktown, Missouri, until 10:00 a.m., C.S.T., MARCH 30, 1950, for the construction of Missouri Forest Highway Project No. 17-A (Roadwork), Perry County, Missouri. Length—5.562 miles. The approximate quantities of the more important items are 66,210 cu. yd. Excavation, 6,100 cu. yd. Crushed Gravel or Crushed Stone Base Course and 2,586 lin. ft. Corrugated Galvanized Sheet Metal Culvert Pipe. Minimum wage rates have been fixed as required by law. For plans and specifications a deposit of $10.00 cash or CERTIFIED check made payable to the Treasurer of the United States will be required to insure their return within 15 days after the opening of bids. Plans, specifications and proposal forms may be obtained from the Bureau of Public Roads at either 115 Nevada Street, Hot Springs, Arkansas, or 1440 Columbia Pike, Arlington, Virginia. Plans and Specifications may be examined at the Ranger's office in Fredericktown or the Forest Supervisor's office, Rolla, Missouri. H. J. Spelman, Division Engineer. (623)

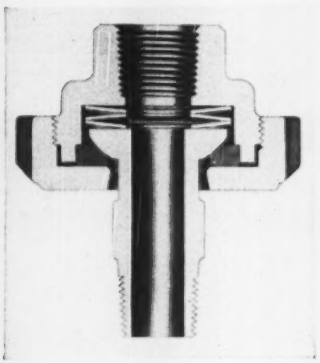
U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, BUREAU OF RECLAMATION, North Platte Project, Design Section, Casper, Wyoming, February 21, 1950, Specifications VII-114. NOTICE IS HEREBY GIVEN that sealed bids on Specifications No. VII-114 will be received at Torrington, Wyoming until 2 p.m. Mountain Standard Time, March 21, 1950, and then publicly opened for furnishing labor and materials and performing all work for furnishing and erecting Pathfinder Dam Spillway Walkways near Alcova, Wyoming, North Platte Project, Wyoming-Nebraska. Copies of the standards forms and of the specifications may be obtained from the following offices of the Bureau of Reclamation: A. A. Batson, Regional Director, New Customhouse, Denver, Colorado; I. J. Matthews, District Manager, P. O. Box 280, Casper, Wyoming; and C. H. Rader, Construction Engineer, Torrington, Wyoming. No charge will be made to prospective bidders for copies of the specifications and drawings; to others $0.50 per copy, not returnable. (622)

NEW PRODUCTS

Half-Yard Six-Ton Excavator Is Convertible to All Attachments

Half-yard excavator has a crane capacity of 6 tons at a 12-ft radius. It is convertible to all front-end attachments. Twin hook-rollers on the 614 are equalized and mounted on front and rear of rotating frame, quickly adjusted by means of an eccentric pin. There are 4 upper load-rollers plus 4 hook rollers. All rollers are conical shaped. Carbody and roller path are bolted to the axles and crawler frame, resulting in an integral, rigid one-piece alloy-steel casting. Automatic traction brakes provide an internal-expanding friction-type locking device for both crawlers. Engaged and released automatically, they provide traction lock without the necessity of manual control. Dipper stick slides through a heavy cast-steel saddle-block, having adjustable and replaceable wearing plates. Direct crowding action is provided by chain-crowd mechanism. An equalizer insures even pull on both strands of the double crowd chain. GMC diesel or Chrysler 8-cylinder gasoline engines are standard. Paired with the 614, is the 617 which is available as a ¾-yd shovel.—Unit Crane & Shovel Corp 6315 W. Burnham St., Milwaukee 14, Wis.

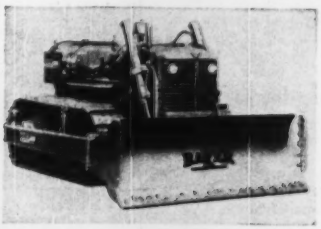


Rotary Swivel Joint

Design of rotary swivel pipe joint for swivel and slow-revolving applications eliminates wedge action of the ball against the gasket, so that turning torque is almost completely eliminated. The ball is held in place by a Belleville spring. It performs without leakage at extreme temperatures, and extra-heavy models are available for extreme pressures and vacuums. A small amount of side flexibility reduces possibility of wear or breakage from side strain. Presently available in 90-deg and straight designs in ¾ to 1-in. pipe sizes.—Barco Mfg. Co., Dept. 45, 1801 W. Winnemac, Chicago 40, Ill.

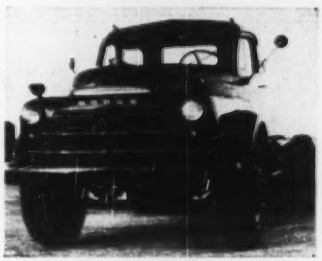
Powered Chipping Hammer

Available in 15 power sizes (using 5 basic hammer sizes), the controlled-power chipping hammer is designed to meet exacting cutting conditions imposed by present-day metals. Each basic hammer size is available in normal cut, extra cut, or supercut types, made possible by a design variation in which one part is interchangeable throughout the entire line. The Airite valve accurately proportions amount of air fed to the front and rear of the piston to maintain top cutting efficiency under all conditions; provides a smooth flow of full power; and eliminates short stroking and loss of power on heavy cuts. Three types of handles are available.—Ingersoll-Rand Co., 11 Broadway, New York, N. Y.



Hydraulic Bulldozers

Bulldozers and Gradebuilders for Allis-Chalmers HD-5 tractors are controlled through twin hydraulic cylinders mounted at the front of the engine frame. Features include: Overhead height of mounting is less than for the tractor itself, direct lift with minimum of working and wearing parts, positive down-pressure, freedom for servicing tractor engine without removing bulldozer mounting, rolling-action blade shape, and fully protected front-mounted pump. Both bulldozer and Gradebuilder are mounted close to radiator to maintain balance and stability and utilize full power of the HD-5.—Baker Mfg. Co., Springfield, Ill.



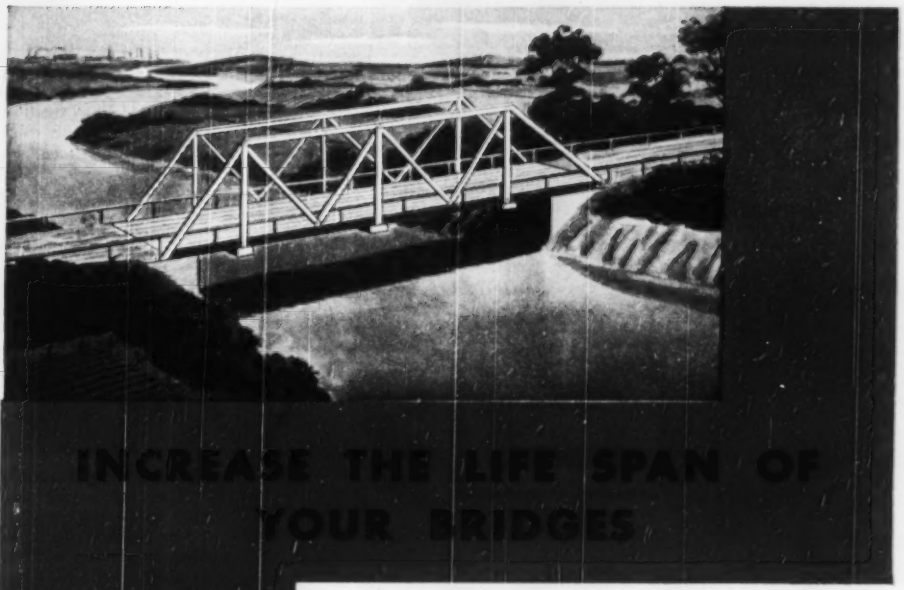
Heavy-Duty Truck

Four-ton truck has a gross-combination-weight of 50,000 lb; a gross-vehicle-weight of 28,000 lb. The specially designed 154-gross-hp engine develops 330 lb/ft of gross torque. The Y and YA model trucks are built with wheelbases of 130, 142, 154, 172, and 190 in. Standard rear axle has a capacity of 18,000 lb; with a 22,000-lb axle available. The 5-speed constant-mesh helical gear transmission has a 330-lb/ft torque input capacity. —Dodge Division, Chrysler Corp., Detroit 31, Mich.

Plywood-Form Calculator

Slide-rule calculator provides quick, easy specification-use data on proper plywood thickness and spacing and size of studs, wales, and ties, based on

(Continued on page 78)



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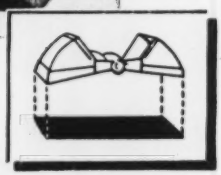

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1½ Yd.	38.7 Sq. ft.
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2¼ Yd.	53.5 Sq. ft.
2½ Yd.	57.6 Sq. ft.
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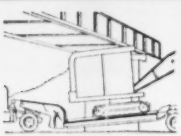
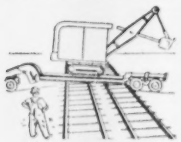


← STOOPS TO CLEAR LOW OVERHEAD OBSTRUCTIONS



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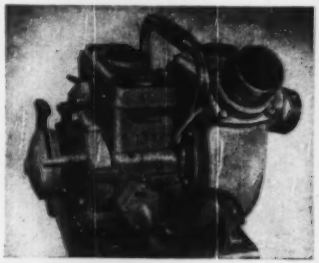
hourly rate of pour. Operated as a slide rule, the Keely Plyform Calculator computes for both vibrated or unvibrated concrete at both 50 and 70-deg temperatures. Included with calculator is a small folder listing design assumptions made in its construction.—Douglas Fir Plywood Assn., Tacoma 2, Wash.



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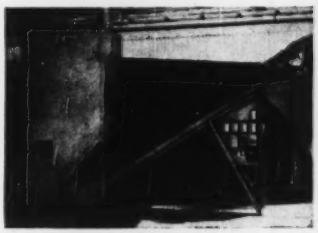

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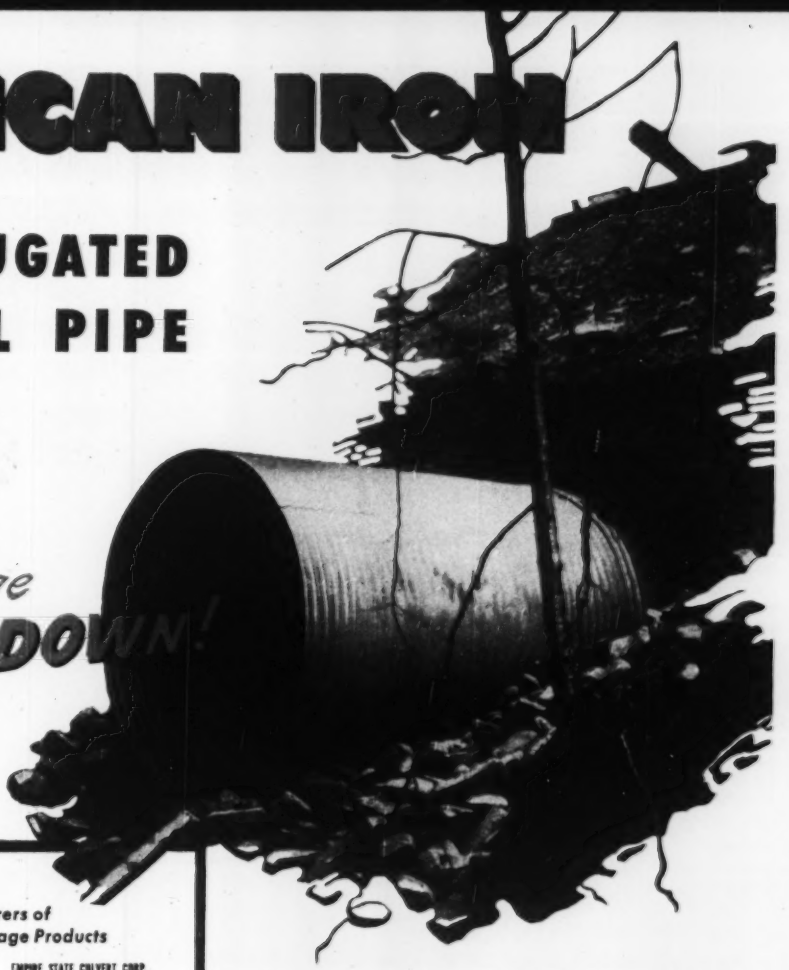

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Here is a mobile, utility-size trencher — Parsons rubber-tired Model 80 Trenchmobile — for handling off-street connections, installing conduit, gas lines, water services, in new subdivisions, on airport maintenance, etc. All those small, tedious trenching operations formerly done by slow, costly hand methods can now be handled in much less time, at less cost, and less supervision with this one-man operated Trenchmobile. Opens new profit possibilities to small contractors . . . fills an important need in speeding up schedules of public utilities and municipalities.

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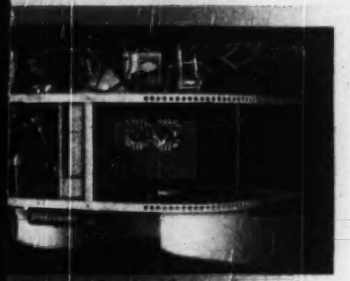
Model 80



Trenchmobile is small, compact . . . overall width is only 4'11" . . . wheelbase, 4'6". 31 H.P. engine provides 8 digging feeds forward (to 14.65' per min.), 4 reverse . . . plus travel speeds from 2.94 to 18.9 m.p.h.

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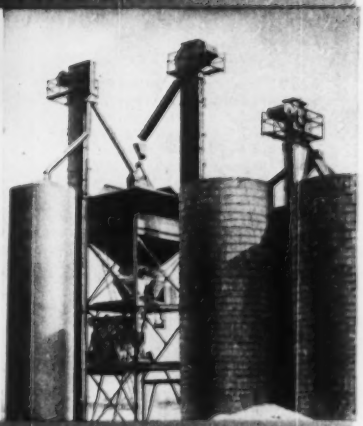

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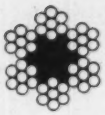
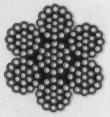
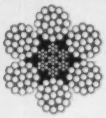


6x7 rope is made with 7 wires in each of 6 strands around a fiber core or a steel core. It may be bright or galvanized steel, stainless steel or monel metal. Uses are for haulage, guying, sand lines, core barrel lines, rigging, controls, etc.

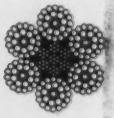


7x19 is made with 7 strands of 19 wires each, one strand forms the core. It is widely used for corrosion-resisting wire rope of galvanized steel, stainless steel and monel metal. Widely used for aircraft controls and for miscellaneous hoisting and controls.

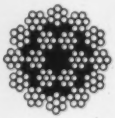


6x19 classification is made with wire combinations varying from 16 to 26 wires in each of 6 strands. Supplied *PRE*formed or non-*PRE*formed, Lang Lay or Regular Lay, with fiber core, or steel core in bright and galvanized steel, stainless steel and monel metal. It is one of the most widely used ropes for general hoisting, cranes, excavating equipment, haulage, mining, logging and rotary drilling. Illustrated is a cross-section of 6x19 filler with I.W.R.C.

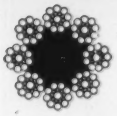
select the right wire rope for your equipment from



6x37 group has various types with wire combinations ranging from 26 to 46 wires in each of 6 strands. Supplied *PRE*formed or non-*PRE*formed, Lang Lay or Regular Lay, with fiber core or steel core. It is extremely flexible and has many uses for hoists, ladle cranes, coal cutting machines, winches, dredges, excavating equipment, etc. Illustrated is a cross-section of 6x41 I.W.R.C.



18x7 is made as illustrated with 18 strands of 7 wires each and supplied *PRE*formed. It is a non-rotating "Kilindo" rope made by combining two opposing lays of rope. Its principal use is for hoisting with a single line to overcome rotating or spinning of the load. It is desirable for small shop and warehouse electric hoists, and for sewer, subway and mine shaft work.



8x19 is an extra flexible rope made in various wire combinations. It is used in iron and special traction grades for passenger and freight elevator service, and in Monarch Whyte Strand Improved Plow Steel for many and varied purposes where the rope is not subjected to heavy crushing loads. Illustrated is 8x19 Seale Special Traction Elevator Rope.

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Perhaps you have several uses for wire rope. Perhaps there are several types of rope you could use. But for better service, lowest operating cost, you should get a specific recommendation for each job. Tell us what equipment you have, how you use it, and the size and type of rope you are now using. Take advantage of our specialized wire rope experience with all types of equipment. Get specifications for the correct rope to use on each machine you have. Just call a Macwhyte distributor or write direct to Macwhyte Company, Service Department, Kenosha, Wisconsin.

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MACWHYTE COMPANY 2930 Fourteenth Avenue, Kenosha, Wisconsin Manufacturers of Monarch Whyte Strand PREformed, Internally Lubricated Wire Rope, ATLAS Braided Wire Rope Slings, Aircraft Cables and Assemblies, Monel Metal and Stainless Steel Wire Rope. Catalog on request. Mill Depots: New York • Pittsburgh • Chicago • Minneapolis Fort Worth • Portland • Seattle • San Francisco • Los Angeles

MANUFACTURERS' PUBLICATIONS

Materials-Handling Tools – Thirty-page catalog describes lifting clamps and other drop-forged materials-handling tools. Catalog 51 describes type of forging produced by Merrill, where and how to use drop forgings; turnbuckle dimensions, strengths, and related data; clevis-nut data; details on drop-forged shackles; eyebolt types, sizes, and dimensions; and miscellaneous data.—MERRILL BROS., 56-02 ARNOLD, MASPETH, NEW YORK, N. Y.

Working of Tool and High-Speed Steels – Certified technical data on "The Working of Tool and High-Speed Steels" is contained in a 16-p. booklet. This booklet presents specific information summarized from carefully checked laboratory and service tests. It lists procedures and tabulations which together form a working manual for makers and users of cutting tools and dies.—ALLEGHENY LUDLUM STEEL CORP., HENRY W. OLIVER BLDG., PITTSBURGH 22, PA.

Hard-Surfacing Electrodes – Chrome-Boride and Wear-Arc electrodes for hard surfacing are listed in this 4-pager. Chrome-Borides are recommended for severe abrasion and corrosion resistance; Wear-Arcs, for impact and abrasion resistance. Bulletin 10849 lists the advantages of each and the styles and sizes in which they are available. Also listed are other items in this company's complete line of arc-welding electrodes.—ALLOY RODS CO., YORK, PA.

Liquid-Level Meters—Illustrated catalog (24 pp.) describes the F&P Level-imeter instruments. These instruments indicate, measure, and control liquid level and inter-face level. Variations in liquid level in weirs and flumes are utilized for measurement and control of large flow rates. Illustrated and described are magnetic tape-and-drum, electronically transmitting, ball-float, pneumatic and differential pressure units; V-notch weir and Parshall flume flowmeter instruments; and chemical-service sight-gage glasses.–FISCHER & PORTER CO., 74 COUNTY LINE ROAD, HATBORO, PA.

Pumps—Two pump catalogs are announced by Byron Jackson. Bulletin 49-6600 describes the VMT pumps designed for handling liquids, hot or cold, corrosive or non-corrosive, where the net positive suction head is limited. Capacities range to 1,000 gpm at heads up to 250 psi, and with standard materials, for temperatures up to 250-deg F. Larger sizes can be furnished. Bulletin 49-9400 describes the standard line of vertical self-priming pumps. These are especially recommended for unwatering operations and similar applications where a self-priming pump is needed. It is available in five pump case sizes with capacities ranging from 600 to 4,000 gpm at heads up to 500 ft.—BYRON JACKSON CO., PUMP DIVISION, TERMINAL ANNEX BOX 2017, LOS ANGELES 54, CALIF.

Flexible-Shaft Machines—Details and specifications for the complete line of Stow flexible shaft machines and accessories, tools shafts, power-drive shafts, and drill shafts are contained in this catalog. Designed primarily as a reference book, Catalog 50 groups the equipment by type and use, charting performance data and specifications within each group.—STOW MFG. CO., 19 SHEAR ST., BINGHAMTON, N. Y.

Planned Street Lighting – Twenty-eight-page booklet provides practical help for the promotion of better street lighting; provides help for the understanding of street-lighting problems; and develops a workable outline to be used in planning street-lighting programs. Numerous charts, graphs, and photographs are used in the presentation of the data in Booklet B-4332. — WESTINGHOUSE ELECTRIC CORP., BOX 2099, PITTSBURGH 30, PA.

Engine-Driven Air Compressor—The Model 105 Unistage air compressor is described in Bulletin No. 4915 (4 pp.) This bulletin contains a complete description of the Unipower engine, the Schramm Pneumastat designed to effect fuel savings, and also points out that 90 percent of the engine and compressors parts are interchangeable. Information is provided on five mounting—2-wheel spring mounting; 4-wheel rubber-tired, less springs; 4-wheel spring mounting; on skids; and truck mounting. — SCHRAMM, INC., WEST CHESTER, PA.

Detachable Drill Bits—One-use throw-away drill bits adaptable to all rock-drilling applications are described in 4-p folder. This folder describes the bit, tells how it is used and what it will do, and lists recommended uses. The bulletin also describes preparation of the drill rod, lists the types available, and describes packaging, field and engineering service, and purchasing information.—CALUMET & HECLA CONSOLIDATED COPPER CO., CALUMET, MICH.

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READER COMMENT

Corrections to Beam Table

Sir: I was glad to see Mr. Martin's article on "Laterally Unsupported Beams Selected from Table" (ENR Nov. 17, p. 46), which agreed closely with a similar table which I computed and use regularly. Please permit me to add to Mr. Stewart's list of typographical errors (ENR Dec. 8, p. 144), since I had intended to submit to you a similar letter.

In the first column of Mr. Martin's table, the beam listed as 36 WF 240 should read 33 WF 240 ($C = 537$). In the second column 14 WF 78 is listed twice, and it should have been listed as 14 WF 78 ($C = 74.4$) and 16 WF 78 ($C = 58.8$).

KURT P. HALBERT
Highway Bridge Dept.
N. Y. State Dept. of Public Works
Albany, N. Y.

Prestressed Concrete Methods

Sir: I have read with astonishment the letter of James J. Bouvy published in the "Reader Comment" column of your issue of January 19, 1950, p 128. As he is the agent of the S.T.U.P. (Freyssinet) in Holland, it seems presumptuous of him to use your columns to advance the merits of the Freyssinet system of prestressing at the expense of the Magnel-Blaton system now being employed in the Walnut Lane Bridge at Philadelphia, particularly as he has no firsthand knowledge of the design, testing or construction of the bridge.

This challenge cannot go unanswered. In defense of the system employed at the Walnut Lane Bridge, it seems proper to point out that The Preload Corporation, which collaborated in the design and is the subcontractor to the Henry W. Horst Co. for constructing the prestressed superstructure, holds a license under the Freyssinet patents as well as the Magnel-Blaton patents, placing it in a position to choose impartially the best system of design and construction to suit American practices for this particular bridge. Before making its choice The Preload Corporation sent three of its engineers on separate occasions to inspect a number of bridges in Belgium and France built by the two methods, and, having designed and built several hundred large prestressed tanks and pipe installations in the United States, is in a competent position to judge the most efficient method of prestressing for this bridge.

Under the Magnel-Blaton method four principles are followed.

(a) Cables should be made in such a manner that there is a minimum frictional resistance during the stressing operation.

(b) Between all wires in a cable, spaces of about $\frac{1}{8}$ in. should be left to allow easy injection of cement grout to protect the wires from corrosion.

(c) Only two wires should be stretched at a time, so as to be sure that practically uniform stress results.

(d) The anchorage must be strong enough to permit an occasional defective wire to break when the stretching force is applied, without damage to the locking device or release of the other wires.

None of these important principles is met in the Freyssinet method, in which 10 to 18 parallel wires are stressed and anchored simultaneously, with the danger of relative slippage and unbalanced stress distribution in all the wires. These wires are disposed around a helical coil and wrapped with paper or sheet metal which prevents the complete grouting and protection of the individual wires. On account of the wrapping, no bond is created between the wires and the concrete of the prestressed member, so the safety of the structure throughout its life is entirely dependent on the vulnerable anchors at each end of the member.

In the Freyssinet system, the anchorage units have a maximum load capacity of 35 tons. This would require 28 separate cables of 18 wires each to develop the required prestress force of 955 tons in the 160-ft. main span girders. In the Magnel-Blaton design, this is accomplished with only four cables, each composed of 64 wires of 0.276-in. dia., in which each pair of wires is anchored independently of the rest. Each wire is entirely surrounded and protected with grout, and each cable is completely bonded in the girder to such an extent that the end anchors could be removed entirely without loss of prestress—precautions which can hardly be ignored. The 28 separate cables which would be needed in the Freyssinet system would require a much larger concrete section to accommodate them with consequent increase in unnecessary dead weight.

In answer to Mr. Bouvy's remarks about the high cost of stressing only two wires at a time it can be stated that experience in stressing the first girders indicates that the total man-hour requirements for stressing and anchoring all the wires required for the 27 girders in the bridge will amount to about three-eighths of 1 per cent of the total cost of the bridge—surely a small price to pay for such important security.

CURZON DOBELL
Vice-President, The Preload Corporation
New York, N. Y.

Carbide-Insert Bits

Sir: Your article "Carbide-Insert Rock Bits" (Feb. 9, p. 35) prompts a few comments.

There are a few manufacturers of carbide bits who have not been able to perfect their products due to a limited knowledge of drilling practice in general. Unfortunately for the industry these manufacturers have made a practice of leaving bits for test without proper instructions, in many cases putting them on jobs where the carbide bit was not the answer. Obviously such practices have resulted in some adverse publicity for carbides. However, this publicity is largely offset by the overwhelming favorable reaction to the exceptional performance of this type bit where it has been correctly applied.

Of the many problems encountered in the successful application of carbide bits, thread trouble has probably been the most magnified. This trouble is primarily the fault of both the old line manufacturer of threaded steel bits and of the consumer, in assuming that if a thread was suitable for a steel bit it would also be suitable for a carbide bit. We tested over 40 thread designs before we were satisfied that we had the ultimate for long, trouble-free, thread life.

From our experience, we would like to make the following observations (which supplement Mr. Lindgren's article):

The larger sizes of crowned-design carbide bits, 3 to 4 inches, will probably replace the churn or well drill bit on quarry faces that do not exceed 50 ft; secondary drilling with crowned-design carbide bits offers greater economy not alone from the longer life and speed of drilling but in the time saved by the driller not having to change bits so often, (this is an outstanding advantage for the operator when he is in a hazardous position); detachable carbide bits are available from $1\frac{3}{4}$ in. to 4 in., in $\frac{1}{8}$-in. increments with the crowned carbide design; intraset steel, with the carbide inlaid directly in the hollow drill steel, for secondary drilling is available in bit sizes from $1\frac{1}{4}$ to $1\frac{1}{2}$ in. This design eliminates thread connections entirely.

VINCENT NEAMOND
President, Rock Bit Sales and Service Co.
Philadelphia, Pa.

Raymond

MAKES 5 TYPES OF CONCRETE PILES

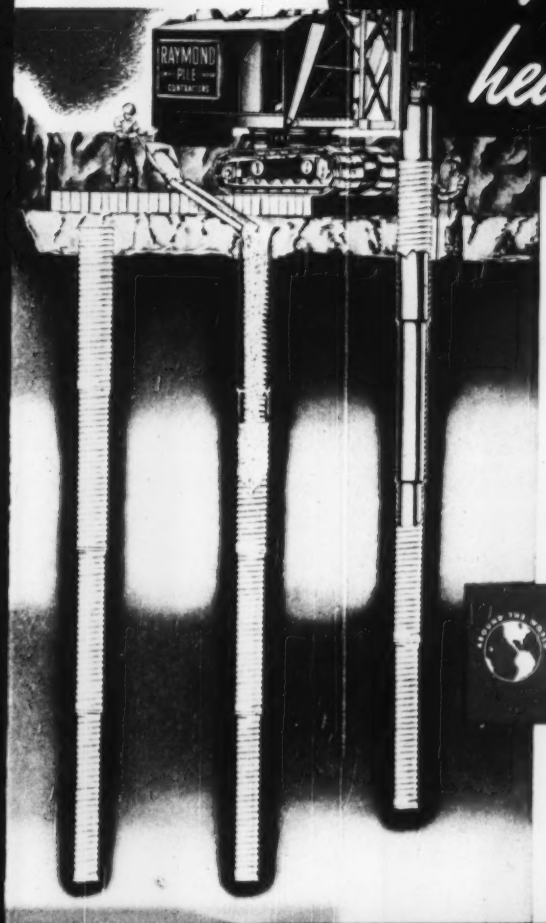
1. STANDARD . . . 2. STEP-TAPER . . . 3. PIPE STEP-TAPER

4. COMPOSITE. . . 5. GOW CAISSONS

Raymond installs every type of pile: cast-in-place concrete, precast concrete, steel pipe, wood and H-beam. Raymond operations include underpinning, borings and soil investigations, waterfront construction and harbor and river improvements, also cement mortar lining of pipes by the Centriline Corporation, a Raymond Subsidiary.

At left, completed Step-Taper Pile. Center, filling the permanent steel shell with concrete after internal inspection. Right, driving the pile with rigid core.

2. STEP-TAPER PILES FOR *long lengths* WITH *heavy loads*



Raymond Step-Taper Concrete Piles driven with rigid steel cores and heavy hammers are designed to develop high load-carrying capacities at depths to 80 feet. The permanent steel shell maintains the resistance developed during driving. After the shell is inspected internally, it is filled with concrete and cut off at the specified elevation.

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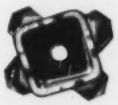
1 STAYS ON MORE DEPENDABLY. New "Spiralock" union*—formed by square socket that spirals slightly as it recedes—has proved superior under actual on-the-job conditions.



2 EASIER TO GET ON AND OFF. A few blows of the drill and it's on. A few blows of a hammer and it's off. Smooth socket contours assure easy detachability.

3 MADE OF TIMKEN ELECTRIC FURNACE STEEL. Fast cutting. Long lasting. Uniform quality.

4 NON-RIFLING. The "X" cutting edge prevents rifling in any ground.

5 CROWNED CHISEL PILOT. Makes for easier starting and "collaring"—faster penetration.

6 SIMPLIFIES PREPARATION OF DRILL STEELS. Due to "Spiralock" union, steels last much longer, are easier to prepare and recondition. Square steel ends simplify fitting. They may be machined or forged.

7 ANY STEELS CAN BE USED. Existing drill steels of any size and section can be adapted quickly and easily.

THE superiority of the new Timken* one-use "Spiralock" rock bit has been proved under actual on-the-job conditions. It offers advantages no other one-use bit can equal.

This revolutionary bit is designed for jobs where bit reconditioning is impractical or undesirable. It is available in a variety of types and sizes.

To get the best bit for your job, use our Rock Bit Engineering Service. Timken and Timken *alone* offers *all three* types of bits—the famous threaded multi-use and threaded carbide insert bits as well as the new one-use "Spiralock" bit. And Timken has been solving rock bit problems for 17 years.

Write to The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".

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TIMKEN

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1 Timken threaded multi-use rock bit.

2 Timken threaded carbide insert rock bit.

3 Timken one-use "Spiralock" rock bit.